DATA SCIENCE AND ANALYTICS BOOTCAMPS

2021 CATALOG

Welcome to

Metis

http://thisismetis.com

(866) 583-4419

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Volume 4.0

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INSTITUTION INFORMATION

Mission and Purpose

Our mission at Metis is to educate people to find value in data. Our interactive distance learning course, designed by world-class industry practitioners, provides immersive and intensive data science training, access to an extensive network of speakers and mentors, and ongoing career support. Our goal is to prepare you to succeed in the field of Data Science and Analytics.

Philosophy

We strive, we sweat, we swear.

We go the extra mile.

We stage, we fail.

We try again. Get it right.

We learn. Connect. Come together.

Welcome to Metis.

Organizational Structure and Background

Metis was founded in 2014 and is owned by Kaplan. Kaplan provides individuals, universities, and businesses a broad array of educational services, including higher and professional education, test preparation, language training, corporate and leadership training, and student recruitment, online enablement and other university support services. With operations in nearly 30 countries, Kaplan serves nearly 1.1 million students each year and has partnerships with 2,000-plus universities, colleges, and schools/school districts, and more than 4,000 businesses globally. Kaplan is a subsidiary of Graham Holdings Company (NYSE: GHC).

Facilities

Metis students receive 100% of the instruction remotely through interactive distance learning and will not be required to physically attend any facility.

Students will log in to the Metis Live Online Bootcamp platform using the meeting ID number provided upon enrollment. Through the online platform, students will engage in scheduled instruction and complete pair programming challenges. The instructors lecture and demonstrate programming in real-time, via their laptop which is visible through screenshare within the online simulcast.

Students will have access to a digital resource center with reference materials, articles and screencasts on the subject matter taught.

Main Campus/Administrative Site for Live Online ONLY
Kaplan Prep & Achieve
750 Third Avenue
New York, NY 10017

State Approvals

Metis operates in accordance with United State laws.

Many states do not regulate a provider of exclusively online instruction with no presence in their state. The states in which we obtained approval to offer the Data Science and Analytics programs are listed below. We continue to seek approval in additional states.

The **Texas Workforce Commission - Career Schools and Colleges**, Austin, Texas.

The programs are not accredited by any accrediting agency. Accreditation is a voluntary process in the United States.

Disclaimer Statement

As a prospective student, you are encouraged to review this catalog prior to signing an enrollment agreement. The student should be aware that some information in the catalog may change. It is recommended that students considering enrollment check with the Program Manager to determine if there is any change from the information provided in the catalog. Not all programs are available in all states. Please see the Appendix for state specific disclaimers.

Metis Administration, Staff, and Faculty

Administration

President, Jason Moss

Chief Operating Officer, Caryn Pochron

Executive Director - Strategy, Roberto Reif

Director of Admissions, Amy Ramnath

Director of Program Operations, Leah Nicolai

Program Manager, Caroline Csernus

Program Manager, Jesel Roosevelt

Director of Career and Student Support, Jennifer Raimone

Senior Career Advisor, Ashley Purdy

Lead Data Scientist, Kim Fessel, PhD Mathematics

Senior Data Scientist, Joan Wang, M.S. Computational Analysis and Public Policy

Senior Data Scientist, Joseph Eddy, B.A. Mathematics

Senior Data Scientist, Vinny Senguttuvan, M.S. Computational Engineering

Data Scientist, Brian McGarry, B.S. Chemistry, B.A. Philosophy

Data Scientist, Chris Bruehl, M.S. Analytics

Data Scientist, Leon Johnson, M.S. Mathematics

Data Scientist, Richard Chiou, M.E. Electrical Engineering and Computer Science (Data Science and Systems)

Data Scientist, Rita Biagioli, PhD Cultural Psychology and Psychological Anthropology

Catalog Certification

Kaplan certifies that the information contained in this publication is current and correct, but is subject to change without notice, and does not constitute a binding agreement on the part of Kaplan or the Administration.

Caryn Pochron, Chief Operating Officer, Metis

ADMISSION INFORMATION

Acceptance to Metis

Admission into the Metis programs is selective and is comprised of three phases. Prospective students, who are at least 18 years of age, must submit a written application with supporting documentation as described below. Applications are reviewed by an Admissions Committee consisting of Metis Staff. At each stage, the Admission Committee evaluates the applicant's application to determine his or her ability to succeed in the program. We assess applicants on (1) programming experience; (2) statistics experience; (3) effective communication skills; (4) personality traits of curiosity, grit, and passion; (5) motivation to join the bootcamp; and (6) potential overall fit within Metis.

1. Prospective students must first submit an online application, which is reviewed by the Admissions committee. Applicants will be asked to provide information about their work and educational background, complete a technical self assessment, and provide insights on their goals after the bootcamp. The online application will take approximately 10-15 minutes to complete. The Admissions committee will review and determine if the applicant moves on to complete the challenges.
2. If advanced to the second round, prospective students will be invited to a 30-minute interview with an Admissions team member. The Admissions committee will determine if the applicant demonstrates curiosity, passion, and grit required to successfully complete the program to which they have applied.
3. If advanced to the final round, prospective students will be invited to complete a technical challenge, comprising a mix of questions in math, statistics, python, and a data science project challenge. Applicants have a total of three hours to complete. The Admissions committee will review and make the final decision if the applicant is granted admission into a bootcamp.
   a. At the Admissions committee's discretion, the committee may offer a conditional acceptance if a candidate has performed well in the admission process but failed to demonstrate sufficient technical proficiency. Applicants who receive a conditional acceptance must demonstrate technical proficiency and submit required documentation within 30 days of the conditional acceptance offer to be reviewed for grant of admission into the program.

Metis operates its program on an ongoing basis. Application deadlines are driven by the program start dates as listed on page 41 of the Catalog. Applications must be received at least three weeks before the program start date. **Not all programs are available to all state residents.**

Admission Requirements

1. State regulatory oversight agencies require that we maintain proof of a student's educational qualifications in our admission records. To prove completion of high school or some college-level coursework, you will need to submit one of the following documents (with English translations, if applicable):

   ● College or university diploma or transcript. (Graduation not required).
   ● High school diploma or transcript (Graduation required)
   ● General Education Development (GED) certificate showing completion

2. Students must be able to speak, read, and write English fluently as all courses are taught in English. Acceptable documentation of English proficiency includes graduation from a high school, college or university that teaches all non-foreign language courses in English, or an acceptable minimum score on any of the following exams: A TOEFL iBT (internet based test) score of 71, a TOEFL pBT (paper based test) score of 530, a TOEFL cBT (computer based test) score of 197, a TOEIC score of 710 or an IELTS score of 6.

3. Demonstrate through the application process, including the coding challenges, that they have programming experience (i.e., writing code) and experience studying or using statistics (or machine learning or computational modeling) by way of previous coursework, research, or job-related experience.

Technology and Equipment Requirements for Digital Instruction

Every student must use his or her personal laptop to remotely connect to the scheduled online instruction equipped with the following:

- An Apple OS X operating system.
- At least 8GB RAM
- At least 2GHz
- At least 100 GB HD
- Download free video conferencing software (currently Zoom is required)
- A video camera (students are required to be on camera at all times during scheduled instruction)

- Optional: Headphones and/or microphone so students are able to interact online with instructors and other virtual students under optimal conditions.

At specific times during the program, students will be required to install specific software or to connect to specific platforms. Those include:

- Python
- Jupyter
- Emacs, SublimeText or other text editor of their choice
- Git
- Github
- Google Chrome
- PostgreSQL
- MongoDB
- bash
- Numpy
- Scipy
- Scikit.learn
- Pandas
- Flask
- Spark
- Hadoop
- Hive

STUDENT INFORMATION AND SERVICES

Student Responsibilities

Students accepted into the Metis program have certain rights and responsibilities. These rights and the associated responsibilities shall establish a student code of professional conduct. Primary to this code is access to an environment free from interference in the learning process.

1. Students have the right to an impartial, objective evaluation of their performance and their pace relative to their peers. Students shall receive in writing information outlining the method of evaluating student progress (including pace) toward, and achievement of skills required for the program.
2. Students will be treated in a manner conducive to maintaining their worth and dignity. Students shall be free from acts or threats of intimidation, harassment, mockery, insult, or physical aggression.
3. Students will be free from the imposition of disciplinary sanctions without proper regard for due process. Formal procedures have been instituted to ensure all students subjected to the disciplinary process are adequately notified.
4. When confronted with perceived injustices, students may seek redress through grievance procedures outlined in the Grievance Policy. Such procedures will be available to those students who make their grievances known in a timely manner.
5. Students may take reasoned exception to the data or views offered in any program of study and may form their own judgment, but they are responsible for learning the academic content of any program in which they are enrolled.
6. Students will be given full disclosure and an explanation by Metis of all fees and financial obligations.
7. Students have the right and responsibility to participate in program and instructor evaluations and to give constructive criticism of the services provided by Metis.
8. Students have the right to quality education. This right includes quality programs; appropriate instructional methodologies and content; instructors who have sufficient educational qualifications and practical expertise in the areas of instruction; the availability of adequate materials, resources, and facilities to promote the practice and application of theory; and an environment that stimulates creativity in learning as well as personal and professional growth.
9. Students have the responsibility to conduct themselves in a professional manner within Metis and to abide by the policies of Metis.
10. Students are expected to conduct all relationships with their peers, Metis staff and faculty with honesty and respect.
11. Students are to comply with directions by Metis faculty and staff members who are acting within the scope of their employment, subject to their rights and responsibilities.
12. Students are encouraged to apply creativity in their own learning processes while striving for academic excellence, and to share their knowledge and learning experiences with fellow students in the interest of greater learning and better practice of the profession.

Conduct

In today's competitive job market, professional conduct is a crucial factor in obtaining and keeping a job. Emphasis is continually placed on regular attendance, promptness, honesty, and a positive attitude. Students must not engage in the following:

1. All forms of dishonesty including cheating, plagiarism, forgery, and intent to defraud through falsification, alteration, or misuse of Metis documents. Except for permitted uses of third party content or code, such as open source code, copying other's work or written text from any source, including the Internet, without properly crediting the source of information, is plagiarism and violates a third party's intellectual property rights.
2. Theft, deliberate destruction, damage, misuse, or abuse of Metis property or the private property of individuals associated with Metis.
3. Inappropriate or profane behavior that causes a disruption of teaching, research, administration, disciplinary proceedings, or other Metis activities.
4. Being under the influence of alcoholic beverages or controlled substances while participating in the Metis programs, including the purchase, consumption, possession, or sale of such items.
5. Failure to comply with Metis officials acting within the scope of their employment responsibilities.
6. Violence or threats of violence toward persons or property of students, faculty, staff, or Metis.
7. Improper use of e-mail and Internet access. Failure to comply with federal software piracy statutes forbidding the copying of licensed computer programs.
8. Audio or video recording of any class or lecture offered byMetis is not permitted.
9. Physical abuse, verbal abuse, intimidation, harassment, coercion, stalking, or any conduct that threatens or endangers the physical or psychological health/safety of another person.
10. Rape, including acquaintance rape and/or sexual assault, in any form.
11. Aiding or abetting others in any of the aforementioned conduct violations.

A student found responsible for involvement in any of the violations listed above may be sanctioned accordingly. Sanctions range from a written letter of reprimand to immediate dismissal from the Metis program. Students dismissed due to violations of conduct are not eligible for readmission.

Intellectual Property Protection and Ownership

Metis respects intellectual property rights and ownership. These policies ensure against unauthorized use of copyrighted material and information technology systems and provide guidance as to ownership of intellectual property.

Metis may provide opportunities for Students to create projects, post comments or contribute their own writing, designs, images, code or other content as part of or in connection with Programs ("**Student Content**"). Students are solely responsible for their own Student Content. Metis does not endorse Student Content and has no responsibility or liability for Student Content. Each Student represents and warrants that his or her Student Content is original and he or she has the unrestricted right to share such Student Content. If Students share any ideas with Metis about our Programs or our business ("**Suggestions**"), students agree that Metis has the unlimited right to use Suggestions without compensation to the Student.

The Program, the Metis website(s), all associated logos and trademarks, all materials to which Students are given access as part of the Program ("**Materials**"), whether those materials be digital or hard copy, all belong to Metis, its partners or its licensors (collectively, "**Metis IP**"). Metis IP may not be copied, reproduced, republished, uploaded or distributed in any way without Metis' prior written consent. Students may not share, sell, rent, give away or otherwise transfer Materials or other Metis IP to any other party without Metis' written consent. After graduation, students will have access to select Metis IP for 6 months. Students who are dismissed or who voluntarily withdraw from the program will have their access to the Metis IP terminated immediately following their last date of attendance.

Student Complaint Procedure/Grievance Policy

The institution encourages students to bring all complaints or grievances about academically related situations to its attention. Many questions or concerns that students may have can be resolved simply through discussion.

A student may present a grievance through the following complaint and dispute resolution procedures. Metis will investigate all complaints or grievances fully and promptly.

A grievance is defined as a student's written expression of dissatisfaction concerning conditions of enrollment or treatment by instructors, other students, or staff. Grievances may include misapplication of Metis' policies, rules, regulations, and procedures, or unfair treatment.

STEP 1

A student should first bring the grievance to the attention of the appropriate instructor.

STEP 2

The student should next bring the grievance to the attention of the Program Manager.

STEP 3

Should the student's grievance not be resolved to the student's satisfaction after completing steps 1 and 2, or if steps 1 and 2 are otherwise impracticable because the grievance is related to those individuals, the student should next bring the grievance to the attention of the Director of Program Operations.

STEP 4

Should the student's grievance not be resolved to the student's satisfaction after completing steps 1 and 2 and 3, or if steps 1 and 2 and 3 are otherwise impracticable because the grievance is related to those individuals, the student should next bring the grievance to the attention of Metis leadership by emailing info@thisismetis.com.

See Appendix for state-specific policies and information if applicable to your state of residence.

Nondiscrimination Policy

The institution encourages diversity and welcomes applications from all minority groups. We do not discriminate against students or potential students on the basis of race, creed, color, religion, ancestry, national origin, age, gender, veteran or military status, sexual orientation, marital status, or the presence of any sensory, mental, or physical disability or the use of a trained guide dog or service animal by a person with a disability. Sexual harassment is a prohibited aspect of sexual discrimination under this policy.

It is the institution's policy to maintain an environment in which all individuals are treated with respect and dignity. Each individual has the right to learn in an atmosphere free from discriminatory practices, including sexual harassment and harassment based on race, religion, gender, color, sex, age, national origin, disability, marital status, sexual orientation, gender identity, veteran status, or any other legally protected status. Discrimination of any kind is unacceptable and will not be tolerated.

Harassment is verbal or physical conduct that denigrates or shows hostility or aversion towards an individual because of his or her protected status, or that of persons with whom the individual associates. For example, racial

harassment includes harassment based on an immutable characteristic associated with race (e.g., skin color or facial features).

Prohibited sexual harassment includes, but is not limited to:

- Coerced sexual acts
- Touching or assaulting an individual's body, or staring, in a sexual manner
- Graphic, verbal commentary about an individual's body or sexuality
- Unwelcome or offensive sexual jokes, sexual language, sexual epithets, sexual gossip, sexual comments or sexual inquiries
- Unwelcome flirtations, advances or propositions
- Continuing to ask an individual for a date after the individual has indicated that he or she is not interested
- Sexually suggestive or obscene comments or gestures
- The display of graphic and sexually suggestive objects, pictures, or graffiti or any computer-generated sexually explicit pictures or graffiti
- Negative statements or disparaging remarks targeted at one's gender (either men or women), even if the content of the verbal abuse is not sexual in nature
- Any form of retaliation against an individual for complaining about the type of behavior described above or supporting the complaint of the alleged victim

We encourage individuals who believe they are being harassed or discriminated against to firmly and promptly notify the alleged offender that his or her behavior is unwelcome. However, whether or not the individual chooses to discuss the incident with the alleged offender, anyone who either experiences or observes harassment or discrimination should report the incident immediately by speaking with the Program Manager, or follow the Student Complaint Procedure/Grievance Policy in the Catalog. The Administration will take any necessary action to promptly investigate the complaint to resolution. We cannot address allegations unless it is made aware of the complaint.

We recognize that false accusations of harassment can cause serious harm to innocent persons. If an investigation results in a finding that the complainant knowingly, falsely accused another person of harassment, the complainant will be subject to disciplinary action, and may be subject to expulsion from the Metis program with due process.

No Retaliation

The institution will not retaliate against any individual who makes a report of perceived harassment or discrimination, nor will it permit such behavior by any person in the Metis program. Retaliation is a serious violation of the institution's policy, and those who feel they have been subjected to any acts of retaliation should immediately report such conduct to the Program Manager.

Students Seeking Reasonable Accommodations

Information pertaining to an applicant's disability is voluntary and confidential. If this information is supplied, it will be used to reasonably attempt to overcome the effects of conditions that affect the admissions process and/or limit the participation of qualified disabled students. All inquiries about accommodations should be made to accessibility@kaplan.com.   Reasonable accommodations will be made on an individual basis. However, it is the responsibility of persons with disabilities to seek available assistance and to make their needs known to the Kaplan Accessibility Team as soon as those needs arise.

Career Services

Career services are available to all graduates of its Data Science and Analytics bootcamp programs. Organized by Metis' team of Career Advisors, these career services include:

- Workshops, resources, and individualized support on resume writing, interviewing, identifying job openings, salary negotiation, technical interviewing, and other job search activities.

- Direct access to potential employers through the organization of a live online Speaker Series that runs throughout the program, and the organization of a job seeker package that includes posting each student's resume and final project presentation on the Metis website for Employers to access.

- Post-graduation support in the form of a week-long, online immersive kick-off to the job search as well as on-going coaching. Career Advisors share techniques on seeking and securing employment, including introductions to employer contacts, if possible; access to MADE, our proprietary online hiring portal; networking events; and integration into Metis' online private alumni network.

While placement assistance will be provided, it is understood that Metis does not promise or guarantee employment, level of anticipated income or wage rate, or geographic location to any student or graduate. If a student fails to attend a job interview arranged by the Metis Careers team, the service may no longer be available to that student. Students are expected to be responsive and update the Careers team while engaged in their job search. Students who do not maintain contact after 30 days of outreach by the Careers Team will be considered to have waived career support and not interested in actively pursuing career opportunities. To reactivate career support, inactive job seekers may contact their Career Advisor via email to state their intent to re-engage in the job search.

Students are responsible for informing the Metis Careers team of their employment information. Although average wage information based on data received from employers and graduates may be available to prospective students, no employee of the institution can guarantee that a graduate will earn any specific amount. Each student's program of study, academic performance, employer needs and location, current economic conditions, and other factors may affect wage levels and career prospects.

Summary of Delivery System

After completing pre-work described below prior to the class start at their own pace, students must be ready to participate in scheduled intensive, online classroom instruction. Students will log into the online classroom via the Metis Zoom conferencing link. They will utilize virtual breakout rooms to engage in pair programming with other virtual students as well as one-on-one meetings with their teachers and TA. Students will attend lectures virtually through the same webinar software. Students will interact with the instructor or TA during the simulcast lecture via the "chat" feature in Zoom. Students will use Slack and GitHub to communicate with others in class, submit project plans, provide updates on their progress, and submit projects for grading. Students will also present each project online using the same webinar conferencing software.

Prerequisite Work

The pre-work takes approximately 36 hours of academic review through open source online resources and additional hours to get set-up, download software, and review introductory materials, depending on the student's level of programming experience and statistics background. Students are required to follow and complete a full

Command Line Crash Course; become familiar with Python; follow a number of install package tutorials (i.e., NumPy, Pandas); and engage in some preliminary statistics and linear algebra work.

The pre-work is intended to provide students with the essential background knowledge they'll need in order to start the Metis Data Science and Analytics programs. The pre-work is continuously reviewed by the Metis Faculty member(s) to ensure students are progressing and understanding the material. Students have online access to one another, as well as to the Metis Faculty member(s), through Slack, an online group chat forum.

Following enrollment, students will have access to the following support services:

- Access to the Program Manager
- Access to the Data Science Teaching Assistant(s) through Slack, an online discussion forum
- Option to meet virtually through web conferencing with Metis Staff and Faculty member(s)

Family Educational Rights and Privacy Act

Student records are maintained for a minimum of five years from the student's last day of attendance, with academic transcripts maintained indefinitely. The Family Educational Rights and Privacy Act (FERPA) affords eligible students and their parents certain rights with respect to their education records including:

- The right to inspect and review the student's education records at the New York offices during normal school hours with an appointment within 45 days of the day the Program Manager receives a written, dated request for access. The institution does not permit students to inspect or review confidential student guidance notes maintained by Metis Administration, or financial records (including any information those records contain) of their parents or guardians.

- The right to request amendment of educational records that the student believes are inaccurate, misleading, or a violation of privacy. Students requesting amendment of an education record should submit a written, dated request to the Program Manager, clearly identify the part of the record they want changed, and specify why it is inaccurate, misleading, or a violation of privacy. If the Metis administration decides not to amend the record, we will notify the student in writing and/or verbally of the decision and of the student's right to an administrative hearing regarding the request for amendment. Additional information regarding the administrative hearing procedures will be provided to the student when he/she is notified of the right to a hearing.

- The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without prior consent from the parents or the eligible student, as applicable. The institution may neither release nor disclose personally identifiable information contained in the student's education records to outside employers, agencies, or individuals without first securing a written release from the parent or eligible student, as applicable, unless permitted by the Act.

  One exception to the above student record release policy permits disclosure without consent to school officials with legitimate educational interests. A school official is a person employed by Kaplan in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff) or a person or company with whom Kaplan is affiliated or has contracted (such as an attorney, auditor, or collection agent). A school official has a legitimate educational interest if the

official needs to review an education record in order to fulfill a professional responsibility.

Upon request, the institution may disclose educational records to officials of another school in which a student seeks or intends to enroll.

- The right to file a complaint with the U.S. Department of Education concerning alleged failures by Metis Administration to comply with the requirements of FERPA. The name and address of the office that administers FERPA is:

  Family Compliance Office
  U.S. Department of Education
  400 Maryland Avenue SW
  Washington DC 20202-4605

Students who are the age of 18 or older or attend a school beyond the high school level are eligible students and shall have the right to file such a complaint. Students who are under 18, their parents shall have such rights.

ACADEMIC INFORMATION

Class Size

There are two Data Scientist instructors assigned to teaching each module within the program with a student-to-teacher ratio maximum of 30:1 for lab and 80:1 for lecture.   There may be periods of the program in which the one instructor will be teaching with the administrative support of one or more Teaching Assistants.

Hours of Operation

The normal hours of operation for Metis bootcamp programs are as follows:

Classes

Data Analytics Bootcamp……………………… Weeks 1-6:   MON-FRI .... 11:00am - 6:00pm ET*

Data Science Bootcamp…………………………Weeks 1-10:   MON-FRI .... 11:00am - 6:00pm ET*

Data Science and Engineering Bootcamp……… Weeks 1-10:   MON-FRI .... 11:00am - 6:00pm ET*

Data Science and Machine Learning Bootcamp.. Weeks 1-14:   MON-FRI .... 11:00am - 6:00pm ET*

Each class day consists of 3 to 4 hours per day of lab and lecture, 2 to 3 hours per day of individual project work, and a 1-hour lunch break. Students may also meet with instructors during office hours scheduled at 10:00am ET and 7:00pm ET Monday through Friday.

Please note: class hours may be extended to make up for missed hours due to holidays.

Online Administrative Office Hours

MON-FRI ....9:00 a.m. to 5:00 p.m. ET

Required Study Time

Apart from scheduled classroom instruction and participation work, outside study and independent practice is required to successfully complete the program. The amount of time will vary according to the individual student's abilities and complexity of the projects. Students should expect to **spend an additional 3 to 4 hours per day outside of class** completing the assigned projects.

Students are responsible for completing any assignments issued by their instructors. All assignments must be turned in at the designated time.

Changes in Programs or Policies

The institution has the right, at its discretion, to make reasonable changes in program delivery, content, materials, schedules, or sequences of content in the interest of improving the student's education, or where deemed necessary due to industry changes, academic scheduling, or professional requirements.

We are required to make changes in programs or policies when ongoing federal, state, or accrediting changes affect students currently in attendance.

These changes will not negatively affect currently enrolled students and will be vetted with the state oversight agencies, if required, prior to enrolling future students.

English as a Second Language Instruction

The Metis program does not offer English as a Second Language instruction. In fact, students must be able to speak, read, and write English fluently as all courses are taught in English.

Attendance/Tardiness Policy

Attendance is critical to build the proper skills. Active participation each day is required to succeed in the Data Science and Analytics programs because much of the program is conducted in a hands-on environment. Students must appear through video on-screen to be marked present for the scheduled instruction. Metis instructors take attendance daily and the attendance records are maintained at the school at all times.

Attendance will be taken in the following manner:

1. Attendance will be taken at the beginning of the morning and the afternoon sessions. A minimum of 80% attendance throughout the program is required. For example, a 10-week bootcamp program has 50 online instruction days, so students must attend a minimum of 40 days.
2. Students arriving 15 minutes late for a session or leaving early from a session will be marked tardy. Tardiness disrupts the learning environment and is discouraged. Continued excessive tardiness or absences in the sessions could lead to disciplinary action up to and including expulsion. Six instances of tardiness will be counted as one absence. Students will be contacted by email or direct message (e.g. Slack) each time s/he is marked absent from a session.

Dismissal Policy for Nonattendance

Students are expected to attend and actively participate each day because significant portions of the Data Science and Analytics programs are hands-on or practical skill based. Missing any portion of the program (failure to attend required check-ins and discussion posts) makes it very difficult for students to adequately complete the required Projects that are graded assessing these specific skills sets.

- Students who are absent from the Metis program for more than 20% of the total length of their program (excluding holidays, breaks, and emergency closures due to unforeseen circumstances such as weather) will be dismissed from the program.
- Metis Administration will advise the student in writing via email or direct message (Slack) of the student's status and will discuss the opportunity to provide reasons for withdrawal, which will be in the student's file. If appropriate, the student will be considered for a leave of absence to restart the program with the next available module and tuition paid will remain valid.
- If a dismissed student wishes to complete the program, s/he may apply for admission into a new cohort after one month from dismissal. Dismissed students who do not wish to continue their program will be eligible for a refund based on the refund policy outlined in their Enrollment Agreement.
- Students may follow the process outlined in the Grievance Policy outlined in this catalog if they feel an error has been made in their attendance calculation.

Make-Up Standards

The Data Science and Analytics bootcamps and Short Immersive courses are especially hands-on and students must be in the virtual classroom every day and on time. If instructional time is missed, it is the student's responsibility to make an appointment with the instructor to determine if the missed work can be made up comparable to the content, time, and delivery of the instruction missed and if applicable, to make a plan to learn the material covered while absent. Lecture videos and pair programming solutions are available for students to review to facilitate their ability to make-up missed work. Make-up work must be completed by the end date of each module. Make-up work cannot be used to excuse an absence and completing make-up work does not change the student's recorded attendance.

Leave of Absence Policy

The program is intensive and hands-on where daily online attendance is required to complete the Project Deliverables. Students who have a medical or family emergency or who are struggling academically may take a leave of absence and defer their enrollment. To apply, the student must submit a written request with supporting documentation, if applicable, to the Program Manager. If approved, the student may defer to any future module of the same topic. Repeat fees may apply. They must sign and date the leave of absence request form and submit it prior to the leave, citing the specific reasons for the leave and the timeframe for when the student's return will be expected. Students who defer due to academic reasons will be required to meet with their instructor to review the topics they should work on prior to returning to the bootcamp. Students who have started the program and defer must complete the remainder of the program within 12 months of their first date of attendance. After 12 months, students will be administratively withdrawn and must reapply to the bootcamp.

Suspension and Dismissal

All students are expected to conduct themselves as responsible adults, to attend online classes regularly, and to maintain a satisfactory level of academic achievement. The institution reserves the right to suspend or dismiss any student who:

- exhibits conduct found by the administration to be detrimental to fellow students, other individuals, the community, or Metis staff, as addressed in the Conduct section of this catalog;
- fails to maintain satisfactory academic progress and has exhausted his or her opportunity to repeat the module;
- fails to meet attendance standards; or
- fails to meet financial obligations of the Metis program.

Time on suspension will be counted as an absence from the Metis program and cannot exceed the allowable absences stated in the attendance policy.

Graduation Requirements

In order to receive a Certificate of Completion in the Data Science program, students must
- successfully complete the Project Deliverables within each program module,

- answer 60% of the quiz questions correctly within each program module,
- meet 80% attendance; and
- fulfill all financial obligations to the institution prior to graduation unless previous satisfactory arrangements have been made.

If satisfactory financial arrangements are not made, the graduation credential will be withheld.

Transcripts

Current or former students may request a free copy of their unofficial transcript by submitting a request to Metis administration including their name and physical address and/or email address where the unofficial transcript should be mailed or emailed. Transcripts will be marked to indicate they are unofficial copies.

Students may request official transcripts through info@thisismetis.com. Official transcripts will not be released for students who have a past-due account with Metis. .

Transfer of Credit to Other Schools

Transfer or Articulation Agreements
The institution has no transfer or articulation agreements with any other college or university that provides for the transfer of credits earned in the program of instruction.

NOTICE CONCERNING TRANSFERABILITY OF CREDITS AND CREDENTIALS EARNED AT OUR INSTITUTION

The transferability of credits you earn in the Metis program is at the complete discretion of an institution to which you may seek to transfer. Acceptance of the certificate you earn in the program is also at the complete discretion of the institution to which you may seek to transfer. If the credits or certificate that you earn in the Metis program are not accepted at the other institution to which you seek to transfer, you may be required to repeat some or all of your coursework at that other institution. For this reason you should make certain that your attendance at the other institution will meet your educational goals. This may include contacting an institution to which you may seek to transfer after attending the Metis program to determine if your credits or certificate could be transferred.

Transfer of Credit to other Programs within Metis

Students who have successfully completed individual Short Immersive courses at Metis that comprise the vocational bootcamps may request to apply credit earned for those modules towards the requirements of a Metis bootcamp. In order to be considered for transfer credit, students must successfully complete the admissions process for the bootcamp and be granted admission to a bootcamp.

Additionally, students who have completed a vocational bootcamp may also apply to transfer the credit achieved to another bootcamp that shares those modules. In all cases, the courses must have been completed within 24 months of acceptance to the new program of study in order for credit to be applied.

Enrolled students who wish to transfer their enrollment from one bootcamp to another must withdraw from their current program and officially enroll into the new program before attending 50% of the program. Transfer students

are subject to the refund policy in their enrollment agreement. Tuition for the new program will be prorated based on the transfer credit awarded toward the new program.

Post Graduate Services

Career services are available to all graduates of its Data Science and Analytics bootcamp programs. Organized by Metis' Career Advisor, these career services include:

- Workshops, resources, and individualized support on resume writing, interviewing, identifying job openings, salary negotiation, technical interviewing, and other job search activities.

- Direct access to potential employers through the organization of a live online Speaker Series that runs throughout the program, and the organization of a job seeker package that includes posting each student's resume and final project presentation on the Metis website for Employers to access.

- Post-graduation support in the form of a week-long, online immersive kick-off to the job search as well as on-going coaching until they are hired. Career Advisors share techniques on seeking and securing employment, including introductions to employer contacts, if possible; access to MADE, our proprietary online hiring portal; networking events; and integration into Metis' online private alumni network.

ACADEMIC STANDARDS

Grading System

The institution uses a numerical grading system (0-25 for Projects; 0-100 for Assessments) for its Certificate Programs and an overall grade of Pass/Fail on the transcript. Students must maintain satisfactory progress on each required Project Deliverable and cumulatively answer 60% of the assessment questions correctly within a module to move on to the next module of the program. In order to receive a Pass for the program, students must successfully complete each module. Individual assignments or projects are evaluated by faculty and student learning pace is monitored.

Projects:

The teaching methods used are hands-on/practical skill, and the assessments that demonstrate these skills are Data Science Projects. Grading and satisfactory progress focus on acquiring knowledge of five key skills: Design, Data, Algorithm, Tools, and Communication. Each of these five skills are number graded on a 1-5 scale (1 being unsatisfactory, 2 being below average, 3 being average, 4 being above average and 5 being excellent). The maximum score a student can achieve on each project is a 25. [A grade of 3 in each skill set would total 15, the equivalent of a "C" letter grade]. These five skills are assessed throughout the program with a required Project Deliverable within each module. Students must receive a minimum score of 15 on the Project Deliverable within each module to move on to the next module. In order to receive a Pass for the program, students must pass each module. A grade of zero (Incomplete) is reserved for students who fail to take the assessment at all.

Assessments:

Students must complete all assessments assigned in a module and cumulatively answer 60% of the questions correctly to pass the module. Students who do not submit their assessments by the assigned due date will receive a score of zero.

Satisfactory Academic Progress

Satisfactory academic progress (SAP) standards apply to all Metis students.

All students must complete their program of study in the normal duration of pre-work prior to start and within the weeks of online instruction as described by the program chart below. Students must complete the program within 6 to 12 months of their start date (refer to the chart below). In order to graduate, a student must successfully complete 100% of the required assignments, and maintain attendance throughout the program.

Program Name	Program Length	Clock Hours	Max Time to Complete
Data Analytics Bootcamp	6 weeks	120 hours	6 months
Data Science Bootcamp	10 weeks	200 hours	12 months
Data Science & Engineering Bootcamp	10 weeks	200 hours	12 months
Data Science & Machine Learning Bootcamp	14 weeks	280 hours	12 months

Any student who receives a score below 15 on a Project within a module or answers less than 60% of assessment questions correctly will receive notification by the Program Manager via email that s/he has not passed the module, has been placed on academic probation and is required to repeat the module and obtain passing scores in order to continue the program. Students must also meet with the instructors to review their academic improvement plan. The Academic Improvement Plan includes remedial work to address the student's skill deficiencies.

Students may, with Metis staff approval, only repeat each module once during their program. Students who are not able to successfully complete a module and have exhausted their opportunity to repeat that same module will be dismissed from the program. In this case, the student will receive a grade of Incomplete. Any student who has been dismissed due to unsatisfactory academic progress may appeal the grade received on the last Project attempted by contacting the Program Manager who will have an independent instructor review the student's Project Deliverable. The procedure for appealing a project grade is as follows: (i) email the Program Manager with the request within 3 days of receiving the grade; (ii) include a statement as to specific areas of the Project Deliverable that is disputed or needs to be re-evaluated. The Lead Data Scientist will make the final decision of any appeal and provide the decision to the student within three weeks of the request for appeal. Assessment scores cannot be appealed.

Students who do not maintain satisfactory progress and are subsequently dismissed from the program are not eligible for readmittance. If a dismissed student wishes to complete the program, s/he may apply for admission into a new cohort after one month from dismissal.

UNIT	Project Deliverable	Scores on each Skill using the following scale: 1-Unsatisfactory, 2-Below average, 3-Average, 4-Above average, 5-Excellent					TOTAL GRADE (0 - 25)
		Design	Data	Algorithm	Tools	Communication	
1	Group Presentation						
2	Presentation						
3	Interactive Dashboard						
4	Report						
5	Presentation						

Schedule for Evaluation: Satisfactory academic progress will be reviewed at the end of each two-week module comprising a bootcamp program for Projects and Quizzes. To move on to the next module, students must successfully complete the assigned Quizzes and the Project Deliverable. Students will receive their final scores via email by the next class day each Project or Quiz is due.

Satisfactory Progress Standard:

Students are expected to achieve no less than 60% of Assessment questions correct and a "3" on each skill set within a Project. Students must maintain satisfactory progress by a grade of 15 or more on each of the required Project Deliverables to receive a Pass for the program. Satisfactory academic progress will be checked at the end of every second week of the program (i.e. the conclusion of each module) for each Project Deliverable and Assessment.

The Bootcamp being immersive, hands-on practical skill training must be completed within the maximum time allotted for each program shown on page 21 of this Catalog, with the exception being that the Final Project Deliverable deadline may be extended no more than three (3) weeks with permission of the Program Manager.

Repeating Modules:

If the need arises for students to repeat a module within a program, they may request Metis staff approval. If approved, they will not be required to pay additional tuition for the first three requests to repeat a module. After the third approved request to repeat a module, students will be charged a $1,000 fee. Students may only apply to repeat each distinct module one time. If a student has exhausted all opportunities to repeat a module and cannot demonstrate successful performance, the student will be dismissed from the program in accordance with the academic dismissal policies.

Readmittance:

Previously admitted students, who did not complete the program, may apply for re-admittance within 12 months of their last date of attendance. If readmitted, credit will be granted for previously completed modules in the new program. Students are not eligible to retake a module after readmittance that has been successfully completed

whether or not charges were paid for that module. However, readmitted students are eligible to enroll in the corresponding Short Immersive course post graduation for the published tuition less the current alumni discount.

FINANCIAL INFORMATION

<u>**Scholarships**</u>

The Metis team recognizes that certain groups are underrepresented in Science, Technology, Engineering, and Mathematics (STEM), and technology careers such as Data Science. We are committed to creating more avenues for talented individuals from underrepresented demographic groups to help drive our future economic growth. Applicants who belong to these groups may apply to only one of the three scholarships listed below. Admitted students will have the opportunity on the enrollment agreement to select one group for which they want to be considered for the scholarship and must apply through the Enrollment Agreement and Scholarship Application. For those scholarship recipients who qualify, a reduced payment obligation will be seen in the tuition invoice emailed to students upon the processing of their enrollment. Each student may receive only one scholarship of those available while at Metis. Metis awards up to 30 scholarships to students per cohort. The scholarship will be applied as reduced tuition for each eligible program as shown in the table below.

Program Name	Scholarship Available For Those Who Qualify	A
Data Analytics Bootcamp	Diversity, Military, and LGBTQ Scholarship	$2,000
Data Science Bootcamp	Diversity, Military, and LGBTQ Scholarship	$3,000
Data Science & Engineering Bootcamp	Diversity, Military, and LGBTQ Scholarship	$3,000
Data Science & Machine Learning Bootcamp	Diversity, Military, and LGBTQ Scholarship	$3,000

Diversity Scholarship

Effective March 1, 2021, a $2,000 or $3,000 scholarship towards Metis tuition is available for women and for individuals from an underrepresented demographic (African-American, Hispanic/Latino-American, Native American, Pacific Islander, mainland Puerto Rico) underrepresented in technology careers.

Military Scholarship

Effective March 1, 2021, a $2,000 or $3,000 scholarship towards Metis tuition is available for active members and veterans of the U.S. military.

LGBTQ Scholarship

Effective March 1, 2021, a $2,000 or $3,000 scholarship towards Metis tuition is available for members of the LGBTQ community, which is comprised of individuals who sexually identify as lesbian, gay, bisexual, transgender or queer (and/or questioning).

Financial Aid

The institution does not participate in federal and state financial aid programs.

TUITION & FEES				
Program Name	Data Analytics	Data Science	Data Science & Engineering	Data Science & Machine Learning
Registration Fee	$100	$100	$100	$100
Course Tuition	$8,900	$14,400	$14,400	$18,400
TOTAL	**$9,000**	**$14,500**	**$14,500**	**$18,500**
*Repeat Fee**	*$1,000*	*$1,000*	*$1,000*	*$1,000*

*Bootcamp students may repeat up to 3 modules at no charge. After the 3rd repeat, a $1,000 fee is applied per module retaken. Please see page 22 for more information about repeating modules in a bootcamp.

There are no additional charges for books or supplies. All instructional materials used are open source and available for free.

Method of Payment: You may either pay the Tuition in total by check or credit card upon Execution of the Enrollment Agreement, or you may provide a deposit of $1,500 followed by two or three installment payments until the outstanding balance is paid. If you are eligible for a scholarship, the tuition and any installment payments will be adjusted accordingly.

Timeliness of Payments: Students who pay in installments will receive via email monthly notifications from the Program Manager indicating the amount owed. Students are responsible for making payment within seven (7) days of receipt of the email. Students who do not pay on time will receive up to two email or direct message reminders. If a student has still not paid within 15 days of the installment due date, Metis administration may decide to suspend Enrollment from the Program until the payment is made. Metis reserves the right to involve a collections agency and will withhold the graduation credential.

Refund Policy and Cancellation Policy

Students who wish to cancel their seat in the program are encouraged to notify the school and may contact the Program Manager by any means so that their seat may be opened for another admitted student on a waiting list. If notification is not provided and the student fails to attend, the school will automatically terminate the enrollment and process a refund as a no-show.

STUDENT'S RIGHT TO CANCEL

The school will provide a full refund if the student is not admitted into the Program or if the Program is cancelled by the school. The school may retain an established registration fee of one hundred dollars if the applicant cancels

past the fifth business day after signing the contract or making an initial payment. A registration fee is any fee charged by a school to process student applications and establish a student record. Please see the appendix for state specific Cancellation Policies.

REFUND POLICY

1. Refund computations will be based on attendance in the Program through the last date of attendance. Leaves of absence, suspensions and school holidays will not be counted as part of the scheduled class attendance.
 2. The effective date of termination for refund purposes will be the last day of recorded attendance or:
    a. when the school receives notice of the student's intent to withdraw from the program; or
    b. when the student's enrollment is terminated for violation of a published school policy which provides for termination; or
    c. when a student, without notice, fails to attend the program for ten calendar days.
 3. After expiration of the cancellation privilege and if the student does not start the online prework, not more than $100 shall be retained by the school for the entire Program.
 4. Once the student starts the Program and withdraws or is otherwise terminated after the cancellation period, the school shall retain $100 plus the amount of tuition proportional to the percentage of weeks completed up to completing 50% of the program. After a student has completed 50% of the program, the school may keep 100% of the tuition. **If you are a resident of the state of Texas, see Addendum for State Specific Refund Calculations.**
 	
 Unearned Tuition: Represents the weeks that the student did not complete. By way of example, if a student drops/terminates during the fourth week of a 10-week program, the student's enrollment has 6 weeks of Unearned Tuition.
 	
 5. Refunds for items of extra expense to the student, such as books, tools, or other supplies are separate from refund of tuition and other academic fees. The student will not be required to purchase instructional supplies, books and tools until such time as these materials are required. Once these materials are purchased, no refund will be made.

If a third party paid for tuition on your behalf, the refund transaction will be made to that third party in the amount of the refund due (but in no event greater than what that third party paid to us). If there is an excess balance of the refund after payment to that third party, that amount will be refunded to you. If you obtained a loan to pay for the Program, you will be responsible for repaying the full amount of the loan plus interest, less the amount of any refund paid back to the loan provider.

The institution reserves the right to delay or cancel the start of a planned Program for reasons such as low enrollment. If you choose not to begin the Program on the delayed starting date or the Program start is cancelled, then we will refund all Fees paid including the non-refundable registration fee.

All refunds due will be made within 30 days of the student's effective withdrawal date or cancellation.In case of prolonged illness, accident, death in the family, or other circumstances that make it impractical to complete the program, a refund that is reasonable and fair to both parties shall be made, but in no event will the amount refunded be less than that reflected in the applicable refund schedule.

ACADEMIC PROGRAMS

Data Science and Analytics - Bootcamp Certificate Programs (Vocational)

Data Analytics Bootcamp
Data Science Bootcamp
Data Science and Engineering Bootcamp
Data Science and Machine Learning Bootcamp

The bootcamps are vocational in nature designed to prepare graduates with the core skills ready to take an entry-level position in the field of Data Science and Data Analytics. Job titles range based on the industry but are typically Data Analyst, Data Scientist, Data Engineer, Jr or Associate Data Scientist, Data Science Consultant and Machine Learning Engineer. The Data Science and Analytics Bootcamps do not prepare students to sit for professional examinations.

The data science and analytics programs have 120 to 280 instructional hours over a period of 6 to 14 weeks, not including time spent working independently on required projects. Prior to graduation, students are required to complete a final Project that will be shared with potential employers as the final piece in their online portfolio. Proposals for all Projects will be reviewed and approved in advance by the Metis Faculty member(s). Upon successful completion of the program, graduates will be awarded a Certificate.

These programs are designed to prepare graduates to pursue entry-level employment in the field, or jobs in related fields, the specific job titles of which may not be represented in the program title or described above. Although the school will assist students with job placement, finding a job is the individual responsibility of the student. The school does not guarantee that any student will be placed in any of the jobs described, or placed at all.

Data Analytics Bootcamp

Program Description
This career track is for anyone who wants to learn the fundamental topics in Data Analytics. Upon graduating from the Bootcamp, a student will be prepared with the core data analytics skills ready to take an entry-level position in the field.

Curriculum

Program Objectives
After completing this course, students will be able to:
- Apply core concepts in exploratory data analysis
- Implement regression models on data
- Create business problem statements

Program Outline and Hours

Online Scheduled Instruction (Weeks 1-6 x 20 hours/week = 120 hours)
These hours exclude a 60-minute daily lunch break and 3 to 4 hours per day of independent project work.

Module #	Module Title	Lecture	Lab	Total
1	Exploratory Data Analysis	20	20	40
2	Linear Regression and Web Scraping	20	20	40
3	Business Fundamentals for Data Practitioners	20	20	40
Total Hours for Program Completion		**60**	**60**	**120**

Module 1 - Exploratory Data Analysis

Week 1 - Exploratory Data Analysis Basics
We will cover the basics of exploratory data analysis and learn how to use a few tools such as SQL and Python libraries. The goals of this unit are to:

- Demonstrate proficiency in using Python packages to ingest, explore, manipulate, and describe tabular datasets.
- Use Python packages to effectively visualize variables and the relationships between them.
- Use appropriate SQL database tools to connect to and query from relational databases.

Week 2: Exploratory Data Analysis Advanced
We will learn about advanced SQL and Python methods. The goals of this unit are to:

- Correctly describe the use of object oriented programming in common Python packages and successfully implement its core concepts by creating simple Python classes.
- Write correct SQL queries to extract data from relational databases, demonstrating proficiency in data selection, aggregation, and manipulation techniques across multiple tables.

Module 2 - Linear Regression and Web Scraping

Week 3: Linear Regression Basics and WebScraping
We will cover the basics of linear regression, as well as feature engineering and cross validation. We will also learn how to webscrape.   The goals of this unit are to:

- Use proper machine learning terminology to precisely describe modeling applications, matching different modeling approaches to their appropriate use.
- Precisely relate the theoretical concept of predictive model complexity (bias/variance tradeoff) to model building and tuning in practice.
- Effectively and appropriately describe and apply model selection and evaluation techniques, including validation, cross-validation, and testing.
- Correctly describe the purpose and applications of python scraping libraries, including their respective strengths and limitations.

- Demonstrate proficiency in web scraping syntax, successfully leveraging it to navigate HTML hierarchy and extract information from it.
- Correctly express the fundamentals of linear regression models, including their functional form, cost function, and theoretical assumptions and limitations.
- Properly define and interpret key regression evaluation metrics

Week 4: Linear Regression Advanced

We will learn about advanced methods in linear regression which include regularization and stochastic gradient descent. We will also have an introduction to time series regression methods. The goals of this unit are to:

- Formally describe regularized linear regression, including its relationship with the bias/variance tradeoff, regularized cost functions, and the major practical differences between LASSO and ridge regularization.
- Demonstrate ability to properly use the data handling and preprocessing techniques that are most commonly leveraged by linear regression models
- Properly interpret visual information as it relates to linear regression modeling, using it to gain insight into feature-target relationships and generate feature engineering ideas.
- Effectively apply linear regression concepts to real-world business problems, determining useful features and which success metrics and techniques (including time series methods and mini-batch gradient descent) are appropriate for the problem.

Module 3 - Business Fundamentals for Data Practitioners

Week 5: Business Analysis

We will learn how to identify, design, and scope data science projects. We will cover the basics of using spreadsheet tools for data analysis and best practices in data visualization. The goals of this unit are to:

- Use spreadsheet software tools to explore, describe, and extract meaningful insights from tabular datasets
- Implement best practices in project design, scoping, and planning to successfully manage data science projects

Week 6: Presentation, Project Management and Ethics

We will learn best practices in delivering presentations and understand the ethical implications about working with data. We will cover the basics of project management. The goals of this unit are to:

- Develop frameworks for thinking about the business impact and ethical implications of their work with data
- Apply appropriate tools and strategies to effectively communicate data-driven insights, both visually and verbally

2021 Data Analytics Program Dates

Certificate Program	Start Date	Expected Graduation Date
Data Analytics Bootcamp	3/22/2021	4/30/2021
	4/19/2021	5/28/2021
	5/17/2021	6/25/2021
	6/14/2021	7/23/2021

Data Analytics Bootcamp	7/12/2021	8/20/2021
	8/9/2021	9/17/2021
	9/7/2021	10/15/2021
	10/4/2021	11/12/2021
	11/1/2021	12/17/2021
	12/6/2021	1/28/2022

Data Science Bootcamp

Program Description
This career track is for anyone who wants to learn the fundamental topics in Data Science. Upon graduating from the Bootcamp, a student will be prepared with the core data science skills ready to take an entry-level position in the field.

Curriculum

Program Objectives
After completing this course, students will be able to:
- Apply core concepts in exploratory data analysis
- Implement regression models on data
- Create business problem statements
- Implement classification models
- Solve unsupervised and natural language processing problems

Program Outline and Hours

Online Scheduled Instruction (Weeks 1-10 x 20 hours/week = 200 hours)
These hours exclude a 60-minute daily lunch break and 3 to 4 hours per day of independent project work.

Module Number and Title		Lecture	Lab	Total
1	Exploratory Data Analysis	20	20	40
2	Linear Regression and Web Scraping	20	20	40
3	Business Fundamental for Data Practitioners	20	20	40
4	Machine Learning Classification	20	20	40
5	Natural Language Processing and Unsupervised Learning	20	20	40
Total Hours for Program Completion		**100**	**100**	**200**

Module 1 - Exploratory Data Analysis

Week 1 - Exploratory Data Analysis Basics
We will cover the basics of exploratory data analysis and learn how to use a few tools such as SQL and Python libraries. The goals of this unit are to:

- Demonstrate proficiency in using Python packages to ingest, explore, manipulate, and describe tabular datasets.
- Use Python packages to effectively visualize variables and the relationships between them.
- Use appropriate SQL database tools to connect to and query from relational databases.

Week 2: Exploratory Data Analysis Advanced
We will learn about advanced SQL and Python methods. The goals of this unit are to:

- Correctly describe the use of object oriented programming in common Python packages and successfully implement its core concepts by creating simple Python classes.
- Write correct SQL queries to extract data from relational databases, demonstrating proficiency in data selection, aggregation, and manipulation techniques across multiple tables.

Module 2 - Linear Regression and Web Scraping

Week 3: Linear Regression Basics and WebScraping
We will cover the basics of linear regression, as well as feature engineering and cross validation. We will also learn how to webscrape. The goals of this unit are to:

- Use proper machine learning terminology to precisely describe modeling applications, matching different modeling approaches to their appropriate use.
- Precisely relate the theoretical concept of predictive model complexity (bias/variance tradeoff) to model building and tuning in practice.
- Effectively and appropriately describe and apply model selection and evaluation techniques, including validation, cross-validation, and testing.
- Correctly describe the purpose and applications of python scraping libraries, including their respective strengths and limitations.
- Demonstrate proficiency in web scraping syntax, successfully leveraging it to navigate HTML hierarchy and extract information from it.
- Correctly express the fundamentals of linear regression models, including their functional form, cost function, and theoretical assumptions and limitations.
- Properly define and interpret key regression evaluation metrics

Week 4: Linear Regression Advanced
We will learn about advanced methods in linear regression which include regularization and stochastic gradient descent. We will also have an introduction to time series regression methods. The goals of this unit are to:

- Formally describe regularized linear regression, including its relationship with the bias/variance tradeoff, regularized cost functions, and the major practical differences between LASSO and ridge regularization.
- Demonstrate ability to properly use the data handling and preprocessing techniques that are most commonly leveraged by linear regression models

- Properly interpret visual information as it relates to linear regression modeling, using it to gain insight into feature-target relationships and generate feature engineering ideas.
- Effectively apply linear regression concepts to real-world business problems, determining useful features and which success metrics and techniques (including time series methods and mini-batch gradient descent) are appropriate for the problem.

Module 3 - Business Fundamentals for Data Practitioners

Week 5: Business Analysis
We will learn how to identify, design, and scope data science projects. We will cover the basics of using spreadsheet tools for data analysis and best practices in data visualization.   The goals of this unit are to:

- Use spreadsheet software tools to explore, describe, and extract meaningful insights from tabular datasets
- Implement best practices in project design, scoping, and planning to successfully manage data science projects

Week 6: Presentation, Project Management and Ethics
We will learn best practices in delivering presentations and understand the ethical implications about working with data. We will cover the basics of project management. The goals of this unit are to:

- Develop frameworks for thinking about the business impact and ethical implications of their work with data
- Apply appropriate tools and strategies to effectively communicate data-driven insights, both visually and verbally

Module 4 - Machine Learning Classification

Week 7: Classification Basics
We will cover basic classification models, classification metrics as well as feature engineering for classification problems. The goals of this unit are to:

- Explain the theoretical underpinnings of common classification algorithms, including their assumptions and limitations
- Calculate key metrics used to evaluate classification models
- Identify appropriate use cases for each classification metric

Week 8: Classification Advanced
We will cover advanced classification models and learn how to work with imbalanced data sets. The goals of this unit are to:

- Evaluate the relative merits of each classification algorithm in terms of predictive performance, interpretability, and complexity
- Apply ensembling, hyperparameter tuning, and class imbalance strategies to improve classification performance
- Effectively apply classification concepts to real-world business problems

Module 5 - Natural Language Processing and Unsupervised Learning

Week 9: Natural Language Processing and Unsupervised Learning Basics
We will cover the basic concepts used of natural language processing, dimensionality reduction, and recommendation systems. We will also introduce basic clustering techniques. The goals of this unit are to:

- Correctly describe and apply foundational techniques in the quantification of text data including tokenization, vectorization, and the document-term matrix; successfully featurize text data with these methods.
- Gain ability to properly and efficiently clean and preprocess text data for quantitative analysis.
- Precisely describe and differentiate key dimensionality reduction algorithms.
- Successfully apply dimensionality reduction algorithms and other modeling techniques to create topic models in language processing.
- Gain ability to build recommendation systems using both content-based and collaborative filtering methods, precisely describing the differences and tradeoffs between the two approaches.

Week 10: Natural Language Processing and Unsupervised Learning Advanced
We will introduce advanced clustering algorithms and natural language processing techniques. The goals of this unit are to:

- Gain ability to cluster data points using the k-means model along with more specialized techniques, correctly navigating the tradeoffs and best use cases for these different methods.
- Develop ability to apply unsupervised learning techniques to a variety of business case studies, with extra focus on natural language processing applications. Successfully compare and contrast these techniques in terms of their algorithmic complexity and data representations, navigating their tradeoffs in order to understand the right technique for the situation.

2021 Data Science Program Dates

Certificate Program	Start Date	Expected Graduation Date
	3/22/2021	5/28/2021
	4/19/2021	6/25/2021
	5/17/2021	7/23/2021
	6/14/2021	8/20/2021
Data Science Bootcamp	7/12/2021	9/17/2021
	8/9/2021	10/15/2021
	9/7/2021	11/12/2021
	10/4/2021	12/17/2021
	11/1/2021	1/28/2022
	12/6/2021	2/25/2022

Data Science and Engineering Bootcamp

Program Description
This career track is for anyone who wants to learn the fundamental topics in Data Science and Engineering. Upon graduating from the Bootcamp, a student will be prepared with the core data science and engineering skills ready to take an entry-level position in the field.

Curriculum

Program Objectives
After completing this course, students will be able to:
- Apply core concepts in exploratory data analysis
- Implement regression models on data
- Work with core engineering tools
- Implement classification models
- Solve unsupervised and natural language processing problems

Program Outline and Hours

Online Scheduled Instruction (Weeks 1-10 x 20 hours/week = 200 hours)
These hours exclude a 60-minute daily lunch break and 3 to 4 hours per day of independent project work.

Module Number and Title		Lecture	Lab	Total
1	Exploratory Data Analysis	20	20	40
2	Linear Regression and Web Scraping	20	20	40
3	Introduction to Data Engineering	20	20	40
4	Machine Learning Classification	20	20	40
5	Natural Language Processing and Unsupervised Learning	20	20	40
Total Hours for Program Completion		**100**	**100**	**200**

Module 1 - Exploratory Data Analysis

Week 1 - Exploratory Data Analysis Basics
We will cover the basics of exploratory data analysis and learn how to use a few tools such as SQL and Python libraries. The goals of this unit are to:

- Demonstrate proficiency in using Python packages to ingest, explore, manipulate, and describe tabular datasets.
- Use Python packages to effectively visualize variables and the relationships between them.
- Use appropriate SQL database tools to connect to and query from relational databases.

Week 2: Exploratory Data Analysis Advanced
We will learn about advanced SQL and Python methods. The goals of this unit are to:

- Correctly describe the use of object oriented programming in common Python packages and successfully implement its core concepts by creating simple Python classes.
- Write correct SQL queries to extract data from relational databases, demonstrating proficiency in data selection, aggregation, and manipulation techniques across multiple tables.

Module 2 - Linear Regression and Web Scraping

Week 3: Linear Regression Basics and WebScraping
We will cover the basics of linear regression, as well as feature engineering and cross validation. We will also learn how to webscrape.   The goals of this unit are to:

- Use proper machine learning terminology to precisely describe modeling applications, matching different modeling approaches to their appropriate use.
- Precisely relate the theoretical concept of predictive model complexity (bias/variance tradeoff) to model building and tuning in practice.
- Effectively and appropriately describe and apply model selection and evaluation techniques, including validation, cross-validation, and testing.
- Correctly describe the purpose and applications of python scraping libraries, including their respective strengths and limitations.
- Demonstrate proficiency in web scraping syntax, successfully leveraging it to navigate HTML hierarchy and extract information from it.
- Correctly express the fundamentals of linear regression models, including their functional form, cost function, and theoretical assumptions and limitations.
- Properly define and interpret key regression evaluation metrics

Week 4: Linear Regression Advanced
We will learn about advanced methods in linear regression which include regularization and stochastic gradient descent. We will also have an introduction to time series regression methods.   The goals of this unit are to:

- Formally describe regularized linear regression, including its relationship with the bias/variance tradeoff, regularized cost functions, and the major practical differences between LASSO and ridge regularization.
- Demonstrate ability to properly use the data handling and preprocessing techniques that are most commonly leveraged by linear regression models
- Properly interpret visual information as it relates to linear regression modeling, using it to gain insight into feature-target relationships and generate feature engineering ideas.
- Effectively apply linear regression concepts to real-world business problems, determining useful features and which success metrics and techniques (including time series methods and mini-batch gradient descent) are appropriate for the problem.

Module 3 - Introduction to Data Engineering

Week 5: Advanced Databases, Cloud Computing, and Big Data Handling
We will cover advanced database tools, cloud computing, and big data handling tools. The goals of this unit are to:

- Precisely describe and contrast relational and non-relational/NoSQL databases, including their data representations and appropriate use cases.
- Write advanced queries in SQL and use NoSQL syntax to extract information from databases, demonstrating proficiency in major data manipulation techniques
- Use big data handling technology to efficiently process massive scale datasets in a parallelized manner.
- Effectively leverage cloud resources to create and use remote servers for computing, storage, and application deployment.

Week 6: Advanced Programming and Web Applications
We will learn about advanced programming techniques and application deployment. The goals of this unit are to:

- Write well-structured, efficient, and reusable code by leveraging key concepts in data structures and object-oriented programming.
- Successfully build and deploy python web applications in a manner that mirrors production environments.

Module 4 - Machine Learning Classification

Week 7: Classification Basics
We will cover basic classification models, classification metrics as well as feature engineering for classification problems. The goals of this unit are to:

- Explain the theoretical underpinnings of common classification algorithms, including their assumptions and limitations
- Calculate key metrics used to evaluate classification models
- Identify appropriate use cases for each classification metric

Week 8: Classification Advanced
We will cover advanced classification models and learn how to work with imbalanced data sets. The goals of this unit are to:

- Evaluate the relative merits of each classification algorithm in terms of predictive performance, interpretability, and complexity
- Apply ensembling, hyperparameter tuning, and class imbalance strategies to improve classification performance
- Effectively apply classification concepts to real-world business problems

Module 5 - Natural Language Processing and Unsupervised Learning

Week 9: Natural Language Processing and Unsupervised Learning Basics
We will cover the basic concepts used of natural language processing, dimensionality reduction, and recommendation systems. We will also introduce basic clustering techniques. The goals of this unit are to:

- Correctly describe and apply foundational techniques in the quantification of text data including tokenization, vectorization, and the document-term matrix; successfully featurize text data with these methods.
- Gain ability to properly and efficiently clean and preprocess text data for quantitative analysis.
- Precisely describe and differentiate key dimensionality reduction algorithms.
- Successfully apply dimensionality reduction algorithms and other modeling techniques to create topic models in language processing.
- Gain ability to build recommendation systems using both content-based and collaborative filtering methods, precisely describing the differences and tradeoffs between the two approaches.

Week 10: Natural Language Processing and Unsupervised Learning Advanced
We will introduce advanced clustering algorithms and natural language processing techniques. The goals of this unit are to:

- Gain ability to cluster data points using the k-means model along with more specialized techniques, correctly navigating the tradeoffs and best use cases for these different methods.
- Develop ability to apply unsupervised learning techniques to a variety of business case studies, with extra focus on natural language processing applications. Successfully compare and contrast these techniques in terms of their algorithmic complexity and data representations, navigating their tradeoffs in order to understand the right technique for the situation.

2021 Data Science and Engineering Program Dates

Certificate Program	Start Date	Expected Graduation Date
Data Science and Engineering Bootcamp	3/22/2021	5/28/2021
	4/19/2021	6/25/2021
	5/17/2021	7/23/2021
	6/14/2021	8/20/2021
	7/12/2021	9/17/2021
	8/9/2021	10/15/2021
	9/7/2021	11/12/2021
	10/4/2021	12/17/2021
	11/1/2021	1/28/2022
	12/6/2021	2/25/2022

Data Science and Machine Learning Bootcamp

Program Description
This career track is for anyone who wants to learn the fundamental topics in Data Science and Machine Learning. Upon graduating from the Bootcamp, a student will be prepared with the core data science and machine learning engineer skills ready to take an entry-level position in the field.

Curriculum

Program Objectives
After completing this course, students will be able to:
- Apply core concepts in exploratory data analysis
- Implement regression models on data
- Create business problem statements
- Implement classification models
- Solve unsupervised and natural language processing problems
- Create deep learning models
- Work with core engineering tools

Program Outline and Hours

Online Scheduled Instruction (Weeks 1-14 x 20 hours/week = 280 hours)
These hours exclude a 60-minute daily lunch break and 3 to 4 hours per day of independent project work.

Module Number and Title		Lecture	Lab	Total
1	Exploratory Data Analysis	20	20	40
2	Linear Regression and Web Scraping	20	20	40
3	Business Fundamental for Data Practitioners	20	20	40
4	Machine Learning Classification	20	20	40
5	Natural Language Processing and Unsupervised Learning	20	20	40
6	Deep Learning Fundamentals	20	20	40
7	Introduction to Data Engineering	20	20	40
Total Hours for Program Completion		**140**	**140**	**280**

Module 1 - Exploratory Data Analysis

Week 1 - Exploratory Data Analysis Basics
We will cover the basics of exploratory data analysis and learn how to use a few tools such as SQL and Python libraries. The goals of this unit are to:

- Demonstrate proficiency in using Python packages to ingest, explore, manipulate, and describe tabular datasets.
- Use Python packages to effectively visualize variables and the relationships between them.
- Use appropriate SQL database tools to connect to and query from relational databases.

Week 2: Exploratory Data Analysis Advanced
We will learn about advanced SQL and Python methods. The goals of this unit are to:

- Correctly describe the use of object oriented programming in common Python packages and successfully implement its core concepts by creating simple Python classes.
- Write correct SQL queries to extract data from relational databases, demonstrating proficiency in data selection, aggregation, and manipulation techniques across multiple tables.

Module 2 - Linear Regression and Web Scraping

Week 3: Linear Regression Basics and WebScraping
We will cover the basics of linear regression, as well as feature engineering and cross validation. We will also learn how to webscrape.   The goals of this unit are to:

- Use proper machine learning terminology to precisely describe modeling applications, matching different modeling approaches to their appropriate use.
- Precisely relate the theoretical concept of predictive model complexity (bias/variance tradeoff) to model building and tuning in practice.
- Effectively and appropriately describe and apply model selection and evaluation techniques, including validation, cross-validation, and testing.
- Correctly describe the purpose and applications of python scraping libraries, including their respective strengths and limitations.
- Demonstrate proficiency in web scraping syntax, successfully leveraging it to navigate HTML hierarchy and extract information from it.
- Correctly express the fundamentals of linear regression models, including their functional form, cost function, and theoretical assumptions and limitations.
- Properly define and interpret key regression evaluation metrics

Week 4: Linear Regression Advanced
We will learn about advanced methods in linear regression which include regularization and stochastic gradient descent. We will also have an introduction to time series regression methods.   The goals of this unit are to:

- Formally describe regularized linear regression, including its relationship with the bias/variance tradeoff, regularized cost functions, and the major practical differences between LASSO and ridge regularization.
- Demonstrate ability to properly use the data handling and preprocessing techniques that are most commonly leveraged by linear regression models

- Properly interpret visual information as it relates to linear regression modeling, using it to gain insight into feature-target relationships and generate feature engineering ideas.
- Effectively apply linear regression concepts to real-world business problems, determining useful features and which success metrics and techniques (including time series methods and mini-batch gradient descent) are appropriate for the problem.

Module 3 - Business Fundamentals for Data Practitioners

Week 5: Business Analysis
We will learn how to identify, design, and scope data science projects. We will cover the basics of using spreadsheet tools for data analysis and best practices in data visualization.   The goals of this unit are to:

- Use spreadsheet software tools to explore, describe, and extract meaningful insights from tabular datasets
- Implement best practices in project design, scoping, and planning to successfully manage data science projects

Week 6: Presentation, Project Management and Ethics
We will learn best practices in delivering presentations and understand the ethical implications about working with data. We will cover the basics of project management. The goals of this unit are to:

- Develop frameworks for thinking about the business impact and ethical implications of their work with data
- Apply appropriate tools and strategies to effectively communicate data-driven insights, both visually and verbally

Module 4 - Machine Learning Classification

Week 7: Classification Basics
We will cover basic classification models, classification metrics as well as feature engineering for classification problems. The goals of this unit are to:

- Explain the theoretical underpinnings of common classification algorithms, including their assumptions and limitations
- Calculate key metrics used to evaluate classification models
- Identify appropriate use cases for each classification metric

Week 8: Classification Advanced
We will cover advanced classification models and learn how to work with imbalanced data sets. The goals of this unit are to:

- Evaluate the relative merits of each classification algorithm in terms of predictive performance, interpretability, and complexity
- Apply ensembling, hyperparameter tuning, and class imbalance strategies to improve classification performance
- Effectively apply classification concepts to real-world business problems

Module 5 - Natural Language Processing and Unsupervised Learning

Week 9: Natural Language Processing and Unsupervised Learning Basics
We will cover the basic concepts used of natural language processing, dimensionality reduction, and recommendation systems. We will also introduce basic clustering techniques. The goals of this unit are to:

- Correctly describe and apply foundational techniques in the quantification of text data including tokenization, vectorization, and the document-term matrix; successfully featurize text data with these methods.
- Gain ability to properly and efficiently clean and preprocess text data for quantitative analysis.
- Precisely describe and differentiate key dimensionality reduction algorithms.
- Successfully apply dimensionality reduction algorithms and other modeling techniques to create topic models in language processing.
- Gain ability to build recommendation systems using both content-based and collaborative filtering methods, precisely describing the differences and tradeoffs between the two approaches.

Week 10: Natural Language Processing and Unsupervised Learning Advanced
We will introduce advanced clustering algorithms and natural language processing techniques. The goals of this unit are to:

- Gain ability to cluster data points using the k-means model along with more specialized techniques, correctly navigating the tradeoffs and best use cases for these different methods.
- Develop ability to apply unsupervised learning techniques to a variety of business case studies, with extra focus on natural language processing applications. Successfully compare and contrast these techniques in terms of their algorithmic complexity and data representations, navigating their tradeoffs in order to understand the right technique for the situation.

Module 6 - Deep Learning Fundamentals

Week 11: Neural Networks, Embeddings and Convolutional Neural Networks
We will cover the basics of neural networks and deep learning including embeddings, transfer learning, and convolutional neural networks. The goals of this unit are to:

- Correctly convert non-tabular data sources into numerical arrays that can be analyzed and processed as neural network inputs.
- Precisely describe the architecture, prediction process, and training methodology of feed-forward neural networks.
- Successfully construct neural networks in python, tuning their hyperparameters with rigorous model training and evaluation techniques.
- Precisely describe the architecture and prediction process of convolutional neural networks, successfully building them to handle image data inputs in python.

Week 12: Sequence Modeling
We will learn about other deep learning methods for modeling of sequential data. The goals of this unit are to:

- Precisely describe the architecture and prediction process of recurrent neural networks, successfully building them to handle sequential data inputs in python.

- Successfully apply transfer learning to improve the quality of both image and text processing neural networks.

Module 7 - Introduction to Data Engineering

Week 13: Advanced Databases, Cloud Computing, and Big Data Handling
We will cover advanced database tools, cloud computing, and big data handling tools.

- Precisely describe and contrast relational and non-relational/NoSQL databases, including their data representations and appropriate use cases.
- Write advanced queries in SQL and use NoSQL syntax to extract information from databases, demonstrating proficiency in major data manipulation techniques
- Use big data handling technology to efficiently process massive scale datasets in a parallelized manner.
- Effectively leverage cloud resources to create and use remote servers for computing, storage, and application deployment.

Week 14: Advanced Programming and Web Applications
We will learn about advanced programming techniques and application deployment.

- Write well-structured, efficient, and reusable code by leveraging key concepts in data structures and object-oriented programming.
- Successfully build and deploy python web applications in a manner that mirrors production environments.

2021 Data Science and Machine Learning Program Dates

Certificate Program	Start Date	Expected Graduation Date
	3/22/2021	6/25/2021
	4/19/2021	7/23/2021
	5/17/2021	8/20/2021
	6/14/2021	9/17/2021
Data Science and Machine Learning Bootcamp	7/12/2021	10/15/2021
	8/9/2021	11/12/2021
	9/7/2021	12/17/2021
	10/4/2021	1/28/2022
	11/1/2021	2/25/2022
	12/6/2021	3/25/2022

Occupational Outcomes

Data Science and Analytics (Certificates)

Upon earning a certificate of completion for the *Data Analytics, Data Science, Data Science and Engineering,* or *Data Science and Machine Learning* programs, the student will be prepared to pursue entry-level data analyst, data scientist, data science consultant, and data miner positions. This means a student shall:

- Have a fluid understanding of and practical experience with the process of designing, implementing, and communicating the results of a data science and analytics project.
- Be a capable coder in Python, including the related packages and toolsets most commonly used in a data related field.
- Understand the landscape of data science tools and their applications, and be prepared to identify and dig into new technologies and algorithms needed for the job at hand.
- Know the fundamentals of data visualization for data analysis and modeling.

We provide assistance to eligible graduates in obtaining employment as entry-level data scientists. Graduate students will continue to receive support post-graduation.

Potential entry-level job position titles include:

- Data Scientist
- Data Analyst
- Data Science Consultant
- Junior/Associate Data Scientist
- Data Engineer
- Machine Learning Engineer
- Data Science Apprentice/Intern
- Analyst

Related positions that certain students will newly be qualified for, depending on previous skill-sets:
- Product Analyst
- Research Analyst
- Marketing Analyst
- Data Journalist
- Business Analyst
- Business Intelligence Analyst
- Database Administrator
- Artificial Intelligence Engineer
- Artificial Intelligence Developer

Academic Calendar

Holiday Schedule	2021
New Year's Day	January 1, 2021
Martin Luther King Day	January 18, 2021
Memorial Day	May 31, 2021
Independence Day	July 5, 2021 (observed)
Labor Day	September 6, 2021
Thanksgiving	November 25 - 26, 2021
Christmas Day	December 25, 2021

Metis operates its program on an ongoing basis. Application deadlines are driven by the program start dates as listed below. Applications must be received at least three weeks before the program start date.

2021 Program Dates

Certificate Program	Start Date	Expected Graduation Date
Data Analytics Bootcamp	3/22/2021	4/30/2021
	4/19/2021	5/28/2021
	5/17/2021	6/25/2021
	6/14/2021	7/23/2021
	7/12/2021	8/20/2021
	8/9/2021	9/17/2021
	9/7/2021	10/15/2021
	10/4/2021	11/12/2021
	11/1/2021	12/17/2021
	12/6/2021	1/28/2022
Data Science Bootcamp	3/22/2021	5/28/2021
	4/19/2021	6/25/2021
	5/17/2021	7/23/2021

	6/14/2021	8/20/2021
	7/12/2021	9/17/2021
	8/9/2021	10/15/2021
	9/7/2021	11/12/2021
	10/4/2021	12/17/2021
	11/1/2021	1/28/2022
	12/6/2021	2/25/2022
Data Science and Engineering Bootcamp	3/22/2021	5/28/2021
	4/19/2021	6/25/2021
	5/17/2021	7/23/2021
	6/14/2021	8/20/2021
	7/12/2021	9/17/2021
	8/9/2021	10/15/2021
	9/7/2021	11/12/2021
	10/4/2021	12/17/2021
	11/1/2021	1/28/2022
	12/6/2021	2/25/2022
Data Science and Machine Learning Bootcamp	3/22/2021	6/25/2021
	4/19/2021	7/23/2021
	5/17/2021	8/20/2021
	6/14/2021	9/17/2021
	7/12/2021	10/15/2021
	8/9/2021	11/12/2021
	9/7/2021	12/17/2021
	10/4/2021	1/28/2022
	11/1/2021	2/25/2022
	12/6/2021	3/25/2022

Data Science and Analytics - Short Immersive Online Courses (Avocational)

ADMISSION INFORMATION

There are no general admissions requirements to enroll in the data science and analytics Short Immersive courses. Please note that there are technical skill recommendations for each course. Every student must use their own laptop for online classes each day. Metis suggests using an Apple OS X operating system, with at least 8GB RAM, at least 2GHz, and at least 100 GB HD, though some other computers can be accommodated with advance notice.   Students may be required to install specific software on their laptops for practical skills training. Each course is 40 clock hours in length (not including 3 to 4 hours per day of independent project work), held from 11:00am to 6:00pm Monday through Friday for two weeks.

Business Fundamentals for Data Practitioners

Course Description
This course is for anyone who wants to learn how to approach data problems from a business perspective, and execute using best practices in project management. While there are no prerequisites, students should be comfortable downloading and installing software applications on their own computers.

Curriculum

Course Objectives
After completing this course, students will be able to:
- Use spreadsheet software tools to explore, describe, and extract meaningful insights from tabular datasets
- Implement best practices in project design, scoping, and planning to successfully manage data science projects
- Apply appropriate tools and strategies to effectively communicate data-driven insights, both visually and verbally
- Develop frameworks for thinking about the business impact and ethical implications of their work with data

Course Outline and Hours

Online Scheduled Instruction (Weeks 1-2 x 20 hours/week = 40 hours)
These hours exclude a 60-minute daily lunch break and 3 to 4 hours per day of independent project work.

Unit Number and Title		Lecture	Lab	Total
1	Business Analysis	10	10	20
2	Presentation, Project Management and Ethics	10	10	20
	Total Hours for Program Completion	**20**	**20**	**40**

Unit 1: Business Analysis
Students will learn how to identify, design, and scope data science projects. They will cover the basics of using spreadsheet tools for data analysis and best practices in data visualization.   The goals of this unit are to:

- Use spreadsheet software tools to explore, describe, and extract meaningful insights from tabular datasets
- Implement best practices in project design, scoping, and planning to successfully manage data science projects

Unit 2: Presentation, Project Management and Ethics
Students will learn best practices in delivering presentations and understand the ethical implications about working with data. They will cover the basics of project management. The goals of this unit are to:

- Develop frameworks for thinking about the business impact and ethical implications of their work with data
- Apply appropriate tools and strategies to effectively communicate data-driven insights, both visually and verbally

Short Immersive Course Schedules and Fees	Start Date	End Date
	4/19/2021	4/30/2021
	5/17/2021	5/28/2021
	6/14/2021	6/25/2021
Business Fundamentals for Data Practitioners Tuition: $3,500 Textbooks: None	7/12/2021	7/23/2021
	8/9/2021	8/20/2021
	9/7/2021	9/17/2021
	10/4/2021	10/15/2021
	11/1/2021	11/12/2021
	12/6/2021	12/17/2021

Deep Learning Fundamentals

Course Description
This course is for anyone who wants to learn the fundamentals of Deep Learning. While there are no prerequisites, students should be proficient in general python, pandas, and basic visualization libraries -- able to comfortably use these tools in order to explore, analyze, and visualize tabular datasets. Students should also be comfortable with the mathematics fundamentals of machine learning including calculus, linear algebra, probability, and statistics.

Curriculum

Course Objectives
After completing this course, students will be able to:
- Correctly convert non-tabular data sources into numerical arrays that can be analyzed and processed as neural network inputs.

- Precisely describe the architecture, prediction process, and training methodology of feed-forward neural networks.
- Successfully construct neural networks in python, tuning their hyperparameters with rigorous model training and evaluation techniques.
- Precisely describe the architecture and prediction process of convolutional neural networks, successfully building them to handle image data inputs in python.
- Precisely describe the architecture and prediction process of recurrent neural networks, successfully building them to handle sequential data inputs in python.
- Successfully apply transfer learning to improve the quality of both image and text processing neural networks.

Course Outline and Hours

Online Scheduled Instruction (Weeks 1-2 x 20 hours/week = 40 hours)
These hours exclude a 60-minute daily lunch break and 3 to 4 hours per day of independent project work.

Unit Number and Title		Lecture	Lab	Total
1	Neural Networks, Embeddings and Convolutional Neural Networks	10	10	20
2	Sequence Modeling	10	10	20
	Total Hours for Program Completion	**20**	**20**	**40**

Unit 1: Neural Networks, Embeddings and Convolutional Neural Networks
Students will cover the basics of neural networks and deep learning including embeddings, transfer learning, and convolutional neural networks. The goals of this unit are to:

- Correctly convert non-tabular data sources into numerical arrays that can be analyzed and processed as neural network inputs.
- Precisely describe the architecture, prediction process, and training methodology of feed-forward neural networks.
- Successfully construct neural networks in python, tuning their hyperparameters with rigorous model training and evaluation techniques.
- Precisely describe the architecture and prediction process of convolutional neural networks, successfully building them to handle image data inputs in python.

Unit 2: Sequence Modeling
Students will learn about other deep learning methods for modeling of sequential data. The goals of this unit are to:

- Precisely describe the architecture and prediction process of recurrent neural networks, successfully building them to handle sequential data inputs in python.
- Successfully apply transfer learning to improve the quality of both image and text processing neural networks.

Short Immersive Schedules and Fees	Start Date	End Date
	6/1/2021	6/11/2021
	6/28/2021	7/9/2021
	7/26/2021	8/6/2021
Deep Learning Fundamentals Tuition: $3,500 Textbooks: None	8/23/2021	9/3/2021
	9/20/2021	10/1/2021
	10/18/2021	10/29/2021
	11/15/2021	12/3/2021

Exploratory Data Analysis

Course Description
This course is for anyone who wants to learn the fundamentals of Exploratory Data Analysis. While there are no prerequisites, students should be proficient in general Python programming concepts, such as data types, conditional statements, loops, and functions. Students should also be comfortable with the mathematics fundamentals of machine learning including calculus, linear algebra, probability, and statistics.

Curriculum

Course Objectives
After completing this course, students will be able to:
- Demonstrate proficiency in using Python packages to ingest, explore, manipulate, and describe tabular datasets.
- Use Python packages to effectively visualize variables and the relationships between them.
- Correctly describe the use of object-oriented programming in common Python packages and successfully implement its core concepts by creating simple Python classes.
- Write correct SQL queries to extract data from relational databases, demonstrating proficiency in data selection, aggregation, and manipulation techniques across multiple tables.
- Use appropriate database tools to connect to and query from relational databases.

Course Outline and Hours

Online Scheduled Instruction (Weeks 1-2 x 20 hours/week = 40 hours)
These hours exclude a 60-minute daily lunch break and 3 to 4 hours per day of independent project work.

Unit Number and Title		Lecture	Lab	Total
1	Exploratory Data Analysis Basics	10	10	20
2	Exploratory Data Analysis Advanced	10	10	20
Total Hours for Program Completion		**20**	**20**	**40**

Unit 1 - Exploratory Data Analysis Basics
Students will cover the basics of exploratory data analysis and learn how to use a few tools such as SQL and Python libraries. The goals of this unit are to:

- Demonstrate proficiency in using Python packages to ingest, explore, manipulate, and describe tabular datasets.
- Use Python packages to effectively visualize variables and the relationships between them.
- Use appropriate SQL database tools to connect to and query from relational databases.

Week 2: Exploratory Data Analysis Advanced
Students will learn about advanced SQL and Python methods. The goals of this unit are to:

- Correctly describe the use of object oriented programming in common Python packages and successfully implement its core concepts by creating simple Python classes.
- Write correct SQL queries to extract data from relational databases, demonstrating proficiency in data selection, aggregation, and manipulation techniques across multiple tables.

Short Immersive Schedules and Fees	Start Date	End Date
	3/22/2021	4/2/2021
	4/19/2021	4/30/2021
	5/17/2021	5/28/2021
	6/14/2021	6/25/2021
Exploratory Data Analysis Tuition: $3,500 Textbooks: None	7/12/2021	7/23/2021
	8/9/2021	8/20/2021
	9/7/2021	9/17/2021
	10/4/2021	10/15/2021
	11/1/2021	11/12/2021
	12/6/2021	12/17/2021

Introduction to Data Engineering

Course Description
This course is for anyone who wants to learn the fundamentals of Data Engineering as it applies to Data Science. While there are no prerequisites, students should be proficient in command line and general python programming, able to effectively use standard python syntax and data structures to implement algorithms. Students should understand the fundamentals of relational databases and be proficient in basic SQL syntax, able to write simple queries to extract information from relational databases. Students should also have working familiarity with regression models, and should understand foundational terminology/approaches in machine learning such as

classification and unsupervised learning. Comfort with web scraping or obtaining data through application programming interfaces (APIs) is a definite plus for expanding the range of possible projects a student can complete, but is not strictly necessary to succeed in the course.

Curriculum

Course Objectives
After completing this course, students will be able to:
- Write well-structured, efficient, and reusable code by leveraging key concepts in data structures and object-oriented programming.
- Effectively leverage cloud resources to create and use remote servers for computing, storage, and application deployment.
- Successfully build and deploy python web applications in a manner that mirrors production environments.
- Precisely describe and contrast relational and non-relational/NoSQL databases, including their data representations and appropriate use cases.
- Write advanced queries in SQL and use NoSQL syntax to extract information from databases, demonstrating proficiency in major data manipulation techniques
- Use big data handling technology to efficiently process massive scale datasets in a parallelized manner.

Course Outline and Hours

Online Scheduled Instruction (Weeks 1-2 x 20 hours/week = 40 hours)
These hours exclude a 60-minute daily lunch break and 3 to 4 hours per day of independent project work.

Unit Number and Title		Lecture	Lab	Total
1	Advanced Databases, Cloud Computing, and Big Data Handling	10	10	20
2	Advanced Programming and Web Applications	10	10	20
Total Hours for Program Completion		**20**	**20**	**40**

Unit 1: Advanced Databases, Cloud Computing, and Big Data Handling
Students will cover advanced database tools, cloud computing, and big data handling tools.

- Precisely describe and contrast relational and non-relational/NoSQL databases, including their data representations and appropriate use cases.
- Write advanced queries in SQL and use NoSQL syntax to extract information from databases, demonstrating proficiency in major data manipulation techniques
- Use big data handling technology to efficiently process massive scale datasets in a parallelized manner.
- Effectively leverage cloud resources to create and use remote servers for computing, storage, and application deployment.

Unit 2: Advanced Programming and Web Applications
Students will learn about advanced programming techniques and application deployment.
- Write well-structured, efficient, and reusable code by leveraging key concepts in data structures and object-oriented programming.

Short Immersive Schedules and Fees	Start Date	End Date
Introduction to Data Engineering Tuition: $3,500 Textbooks: None	4/19/2021	4/30/2021
	5/17/2021	5/28/2021
	6/14/2021	6/25/2021
	7/12/2021	7/23/2021
	8/9/2021	8/20/2021
	9/7/2021	9/17/2021
	10/4/2021	10/15/2021
	11/1/2021	11/12/2021
	12/6/2021	12/17/2021

Linear Regression and Web Scraping

Course Description
This course is for anyone who wants to learn the fundamentals of Linear Regression and Web Scraping. While there are no prerequisites, students should be proficient in general python, pandas, and basic visualization libraries -- able to comfortably use these tools in order to explore, analyze, and visualize tabular datasets. Students should also be comfortable with the mathematics fundamentals of machine learning including calculus, linear algebra, probability and statistics.

Curriculum

Course Objectives
After completing this course, students will be able to:
- Use proper machine learning terminology to precisely describe modeling applications, matching different modeling approaches to their appropriate use.
- Precisely relate the theoretical concept of predictive model complexity (bias/variance tradeoff) to model building and tuning in practice.
- Effectively and appropriately describe and apply model selection and evaluation techniques, including validation, cross-validation, and testing.
- Correctly describe the purpose and applications of python scraping libraries, including their respective strengths and limitations.
- Demonstrate proficiency in web scraping syntax, successfully leveraging it to navigate HTML hierarchy and extract information from it.
- Correctly express the fundamentals of linear regression models, including their functional form, cost function, and theoretical assumptions and limitations.
- Properly define and interpret key regression evaluation metrics

- Formally describe regularized linear regression, including its relationship with the bias/variance tradeoff, regularized cost functions, and the major practical differences between LASSO and ridge regularization.
- Demonstrate ability to properly use the data handling and preprocessing techniques that are most commonly leveraged by linear regression models
- Properly interpret visual information as it relates to linear regression modeling, using it to gain insight into feature-target relationships and generate feature engineering ideas.
- Effectively apply linear regression concepts to real-world business problems, determining useful features and which success metrics and techniques (including time series methods and mini-batch gradient descent) are appropriate for the problem.

Course Outline and Hours

Online Scheduled Instruction (Weeks 1-2 x 20 hours/week = 40 hours)
These hours exclude a 60-minute daily lunch break and 3 to 4 hours per day of independent project work.

Unit Number and Title		Lecture	Lab	Total
1	Linear Regression Basics and WebScraping	10	10	20
2	Linear Regression Advanced	10	10	20
	Total Hours for Program Completion	**20**	**20**	**40**

Unit 1: Linear Regression Basics and WebScraping
We will cover the basics of linear regression, as well as feature engineering and cross validation. We will also learn how to webscrape.   The goals of this unit are to:

- Use proper machine learning terminology to precisely describe modeling applications, matching different modeling approaches to their appropriate use.
- Precisely relate the theoretical concept of predictive model complexity (bias/variance tradeoff) to model building and tuning in practice.
- Effectively and appropriately describe and apply model selection and evaluation techniques, including validation, cross-validation, and testing.
- Correctly describe the purpose and applications of python scraping libraries, including their respective strengths and limitations.
- Demonstrate proficiency in web scraping syntax, successfully leveraging it to navigate HTML hierarchy and extract information from it.
- Correctly express the fundamentals of linear regression models, including their functional form, cost function, and theoretical assumptions and limitations.
- Properly define and interpret key regression evaluation metrics

Unit 2: Linear Regression Advanced
We will learn about advanced methods in linear regression which include regularization and stochastic gradient descent. We will also have an introduction to time series regression methods.   The goals of this unit are to:

- Formally describe regularized linear regression, including its relationship with the bias/variance tradeoff, regularized cost functions, and the major practical differences between LASSO and ridge regularization.
- Demonstrate ability to properly use the data handling and preprocessing techniques that are most commonly leveraged by linear regression models
- Properly interpret visual information as it relates to linear regression modeling, using it to gain insight into feature-target relationships and generate feature engineering ideas.
- Effectively apply linear regression concepts to real-world business problems, determining useful features and which success metrics and techniques (including time series methods and mini-batch gradient descent) are appropriate for the problem.

Short Immersive Schedules and Fees	Start Date	End Date
	4/5/2021	4/16/2021
	5/3/2021	5/14/2021
	6/1/2021	6/11/2021
	6/28/2021	7/9/2021
Linear Regression and Web Scraping	7/26/2021	8/6/2021
Tuition: $3,500	8/23/2021	9/3/2021
Textbooks: None	9/20/2021	10/1/2021
	10/18/2021	10/29/2021
	11/15/2021	12/3/2021

Machine Learning Classification

Course Description
This course is for anyone who wants to learn the fundamentals of Classification models. While there are no prerequisites, students should be proficient in general python, pandas, and basic visualization libraries -- able to comfortably use these tools in order to explore, analyze, and visualize tabular datasets. Students should be comfortable with the mathematics fundamentals of machine learning including calculus, linear algebra, probability, and statistics. Students should be familiar with the theory and applications of linear regression
Students should understand foundational concepts in machine learning, including supervised learning terminology, regularization, bias/variance trade-off, gradient descent, and model selection and evaluation techniques such as cross validation and testing. Comfort with web scraping or obtaining data through application programming interfaces (APIs) is a definite plus for expanding the range of possible projects a student can complete, but is not strictly necessary to succeed in the course

Curriculum

Course Objectives
After completing this course, students will be able to:
- Explain the theoretical underpinnings of common classification algorithms, including their assumptions and limitations
- Evaluate the relative merits of each classification algorithm in terms of predictive performance, interpretability, and complexity
- Calculate key metrics used to evaluate classification models
- Identify appropriate use cases for each classification metric
- Apply ensembling, hyperparameter tuning, and class imbalance strategies to improve classification performance
- Effectively apply classification concepts to real-world business problems

Course Outline and Hours

Online Scheduled Instruction (Weeks 1-2 x 20 hours/week = 40 hours)
These hours exclude a 60-minute daily lunch break and 3 to 4 hours per day of independent project work.

Unit Number and Title		Lecture	Lab	Total
1	Classification Basics	10	10	20
2	Classification Advanced	10	10	20
	Total Hours for Program Completion	**20**	**20**	**40**

Unit 1: Classification Basics
Students will cover basic classification models, classification metrics as well as feature engineering for classification problems. The goals of this unit are to:

- Explain the theoretical underpinnings of common classification algorithms, including their assumptions and limitations
- Calculate key metrics used to evaluate classification models
- Identify appropriate use cases for each classification metric

Unit 2: Classification Advanced
Students will cover advanced classification models and learn how to work with imbalanced data sets. The goals of this unit are to:

- Evaluate the relative merits of each classification algorithm in terms of predictive performance, interpretability, and complexity
- Apply ensembling, hyperparameter tuning, and class imbalance strategies to improve classification performance
- Effectively apply classification concepts to real-world business problems

Short Immersive Schedules and Fees	Start Date	End Date
	5/3/2021	5/14/2021
	6/1/2021	6/11/2021
	6/28/2021	7/9/2021
Machine Learning Classification Tuition: $3,500 Textbooks: None	7/26/2021	8/6/2021
	8/23/2021	9/3/2021
	9/20/2021	10/1/2021
	10/18/2021	10/29/2021
	11/15/2021	12/3/2021

Natural Language Processing and Unsupervised Learning

Course Description
This course is for anyone who wants to learn the fundamentals of Natural Language Processing and Unsupervised Learning including Dimensionality Reduction, Recommendation Systems and Clustering. While there are no prerequisites, students should be proficient in general python, pandas, and basic visualization libraries -- able to comfortably use these tools in order to explore, analyze, and visualize tabular datasets. Students should be comfortable with the mathematics fundamentals of machine learning including calculus, linear algebra, probability, and statistics. Students should also have at least working familiarity with major topics in supervised machine learning including linear regression, basic classification models, and model evaluation. Comfort with web scraping or obtaining data through application programming interfaces (APIs) is a definite plus for expanding the range of possible projects a student can complete, but is not strictly necessary to succeed in the course.

Curriculum

Course Objectives
After completing this course, students will be able to:
- Correctly describe and apply foundational techniques in the quantification of text data including tokenization, vectorization, and the document-term matrix; successfully featurize text data with these methods.
- Gain ability to properly and efficiently clean and preprocess text data for quantitative analysis.
- Precisely describe and differentiate key dimensionality reduction algorithms.
- Successfully apply dimensionality reduction algorithms and other modeling techniques to create topic models in language processing.
- Gain ability to cluster data points using the k-means model along with more specialized techniques, correctly navigating the tradeoffs and best use cases for these different methods.
- Develop ability to apply unsupervised learning techniques to a variety of business case studies, with extra focus on natural language processing applications. Successfully compare and contrast these techniques in terms of their algorithmic complexity and data representations, navigating their tradeoffs in order to understand the right technique for the situation.

- Gain ability to build recommendation systems using both content-based and collaborative filtering methods, precisely describing the differences and tradeoffs between the two approaches.

Course Outline and Hours

Online Scheduled Instruction (Weeks 1-2 x 20 hours/week = 40 hours)
These hours exclude a 60-minute daily lunch break and 3 to 4 hours per day of independent project work.

Unit Number and Title		Lecture	Lab	Total
1	Natural Language Processing and Unsupervised Learning Basics	10	10	20
2	Natural Language Processing and Unsupervised Learning Advanced	10	10	20
	Total Hours for Program Completion	**20**	**20**	**40**

Unit 1: Natural Language Processing and Unsupervised Learning Basics
Students will cover the basic concepts used of natural language processing, dimensionality reduction, and recommendation systems. They will also introduce basic clustering techniques. The goals of this unit are to:

- Correctly describe and apply foundational techniques in the quantification of text data including tokenization, vectorization, and the document-term matrix; successfully featurize text data with these methods.
- Gain ability to properly and efficiently clean and preprocess text data for quantitative analysis.
- Precisely describe and differentiate key dimensionality reduction algorithms.
- Successfully apply dimensionality reduction algorithms and other modeling techniques to create topic models in language processing.
- Gain ability to build recommendation systems using both content-based and collaborative filtering methods, precisely describing the differences and tradeoffs between the two approaches.

Unit 2: Natural Language Processing and Unsupervised Learning Advanced
Students will introduce advanced clustering algorithms and natural language processing techniques. The goals of this unit are to:

- Gain ability to cluster data points using the k-means model along with more specialized techniques, correctly navigating the tradeoffs and best use cases for these different methods.
- Develop ability to apply unsupervised learning techniques to a variety of business case studies, with extra focus on natural language processing applications. Successfully compare and contrast these techniques in terms of their algorithmic complexity and data representations, navigating their tradeoffs in order to understand the right technique for the situation.

Short Immersive Schedules and Fees	Start Date	End Date
Natural Language Processing and Unsupervised Learning Tuition: $3,500 Textbooks: None	5/17/2021	5/28/2021
	6/14/2021	6/25/2021
	7/12/2021	7/23/2021
	8/9/2021	8/20/2021
	9/7/2021	9/17/2021
	10/4/2021	10/15/2021
	11/1/2021	11/12/2021
	12/6/2021	12/17/2021

Data Science and Analytics - Bootcamp Prep Online Courses (Avocational)

ADMISSION INFORMATION

There are no general admissions requirements to enroll in the data science and analytics Bootcamp Prep courses. Please note that there are technical skill recommendations for each course. Every student must use their own laptop for online classes each day. Metis suggests using an Apple OS X operating system, with at least 8GB RAM, at least 2GHz, and at least 100 GB HD, though some other computers can be accommodated with advance notice. Students may be required to install specific software on their laptops for practical skills training. Courses vary from 12 to 36 clock hours in length, typically held from 6:30pm to 9:30pm twice per week.

Introduction to Data Science (36 hours)

This course will serve as an introduction to data science using the most popular language for doing data science, Python. Some topics covered in depth in the Data Science Bootcamp, such as exploratory data analysis, supervised and unsupervised learning models will be discussed. We will start with a high-level overview of some of the different classes of problems data science is meant to solve, and then proceed to work through some of the techniques commonly used in a typical data science workflow.

This short course will also expose students to the data science approach to thinking about and solving problems, and to help students learn to think about data-heavy problems that they will encounter in the future. Students will learn how data science is done in the wild, including data acquisition/cleaning/aggregation, exploratory data analysis/visualization, feature engineering, and model creation/validation. Students will use the Python scientific stack to work through examples that illustrate

all of these concepts, with real-life use cases. Concurrently, students will learn some of the statistical and mathematical foundations that power the data scientific approach to problem solving.

Recommended Technical Skills

- Familiarity with basic statistical and linear algebraic concepts such as mean, median, mode, standard deviation, correlation, and the difference between a vector and a matrix. Knowledge of Python is highly recommended. In Python, it will be helpful to know basic data structures such as lists, tuples and dictionaries, and what distinguishes them (that is, when they should be used). Python v3 is currently used in the course.

Course Objectives:

After completing this short-course, students will have:

- The ability to tackle further data science study, particularly our full-time immersive Data Science Bootcamp
- An understanding of problems solvable with data science and an ability to attack them from a statistical perspective
- The ability to create data analytical pipelines and applications in Python
- Familiarity with the Python data science ecosystem and the various tools needed to continue developing as a data scientist

Course Outline and Hours:
The class is comprised of a roughly even mix of lectures/instruction and hands-on programming/lab work. The week-by-week breakdown is as follows:

Unit #	Unit Title	Lecture	Lab	Total
1	Computer Science/Statistics/Linear Algebra Short	3	3	6
2	Exploratory Data Analysis and Visualization	3	3	6
3	Data Modeling: Supervised/Unsupervised Learning and Model Evaluation	3	3	6
4	Data Modeling: Feature Selection, Engineering, and Data Pipelines	3	3	6
5	Data Modeling: Advanced Supervised/Unsupervised Learning and Model Evaluation	3	3	6
6	Data Modeling: Advanced Model Evaluation and Data Pipelines	3	3	6
	Total Hours for Program Completion	**18**	**18**	**36**

Unit 1 | Computer Science/Statistics/Linear Algebra Short (6 hours)
We start with the basics. For CS, we briefly cover basic data structures/types, program control flow, and syntax in Python. For statistics, we go over basic probability and probability distributions, along with general properties of some common distributions. For linear algebra, we cover matrices, vectors, and some of their properties and how to use them in Python.

Unit 2 | Exploratory Data Analysis and Visualization (6 hours)
We spend a considerable amount of time using the Pandas Python package to attack a dataset we've never seen before, uncovering some useful information from it. At this point, students decide on a course project that would benefit from the data-scientific approach. The project must involve public (freely-accessible and usable) data and must answer an interesting question, or collection of questions, about that data. (Several resources of free data will be provided.)

Unit 3 | Data Modeling: Supervised/Unsupervised Learning and Model Evaluation (6 hours)
We learn about the two basic kinds of statistical models, which have classically been used for prediction (supervised learning): Linear Regression and Logistic Regression. We also look at clustering using K-Means, one of the ways you can glean information from unlabeled data.

Unit 4 | Data Modeling: Feature Selection, Engineering, and Data Pipelines (6 hours)
We switch gears from talking about algorithms to talk about features. What are they? How do we engineer them? And what can be done (Principal Component Analysis/Independent Component Analysis, regularization) to create and use them given the data at hand? We also cover how to construct complete data pipelines, going from data ingestion and preprocessing to model construction and evaluation.

Unit 5 | Data Modeling: Advanced Supervised/Unsupervised Learning and Model Evaluation (6 hours)
We delve into more advanced supervised learning approaches and get a feel for linear support vector machines, decision trees, and random forest models for regression and classification. We also explore DBSCAN, an additional unsupervised learning approach.

Unit 6 | Data Modeling: Advanced Model Evaluation and Data Pipelines | Presentations (6 hours)
We explore more sophisticated model evaluation approaches (cross-validation and bootstrapping) with the goal of understanding how we can make our models as generalizable as possible. Students complete data science projects and share learnings and discoveries.

SCHEDULE & FEES

Tution: $750

Textbook: none

Schedule: Please visit www.thisismetis.com for current schedules.

Beginner Python and Math for Data Science (36 hours)

Recommended Technical Skills: Students should be proficient with computers and be able to install Python on their laptops. Specifically, they need to install and verify the installation of Anaconda (for Python 3) by running a "Hello World" sample code.

This professional development course is for anyone who wants to learn data science from scratch and has no prior experience with fundamental Python programming and math concepts. Whether you're considering a new career in data science, you want to understand the basics in order to advance in your current career, or you want to be able to communicate more effectively with data-oriented colleagues, you'll complete this course with a solid understanding of some of the basic skills required.

Course Objectives

After completing this short-course, students will:
- have the ability to write basic Python code, such as functions, data manipulation, and visualization
- have an understanding of the fundamentals of mathematical concepts in linear algebra, calculus, probabilities and statistics
- have the ability to write Python code to solve mathematical problems using linear algebra, calculus, probabilities and statistics
- be prepared to tackle courses in Data Science, particularly our Introduction to Data Science and Statistics Courses

Course Outline and Hours

Unit #	Unit Title	Lecture	Lab	Total
1	Python Basics	5	1	6
2	Python Advanced	5	1	6
3	Python Mathematical Libraries	5	1	6
4	Linear Algebra	5	1	6
5	Calculus and Probabilities	5	1	6
6	Statistics	5	1	6
Total Hours for Program Completion		**30**	**6**	**36**

Unit 1: Python Basics (6 hours)
We will cover an introduction to programming in Python. Learn how Jupyter Notebooks work, and cover the basics of programming including data structures, data operations, if else statements, for and while loops, and logical operations.

Unit 2: Python Advanced (6 hours)
We will cover advanced functionality in Python, including functions, debugging, error handling, string manipulations, and writing efficient code.

Unit 3: Python Mathematical Libraries (6 hours)
Learn about using libraries that are useful for data manipulation and visualization. Specifically, we will be using Numpy, Pandas and Matplotlib. These libraries will allow us to load and save data, manipulate data such as aggregating, filtering, detecting outliers, and visualizing.

Unit 4: Linear Algebra (6 hours)
Learn the fundamentals of linear algebra, including vectors, and vector manipulations, matrices and matrix manipulations, linear equations and its solutions, eigenvalues and eigenvectors.

Unit 5: Calculus and Probabilities (6 hours)
We will cover the fundamentals of calculus and gain an intuition for derivatives, integrals, determining local maximum and minimum, and limits. Similarly we will cover an introduction to probabilities and understand random variables, mean, variance, probability mass and density functions, and cumulative distribution functions.

Unit 6: Statistics (6 hours)
We will cover the basics of statistics and its applications. Some topics include ANOVA, hypothesis testing and p-value, and confidence intervals.

SCHEDULE & FEES

Tution: $750

Textbook: none

Schedule: Please visit www.thisismetis.com for current schedules.

Python for Beginners (12 hours)

Recommended Technical Skills: Students should be proficient with computers and be able to install Python on their laptops. Specifically, they need to install and verify the installation of Anaconda (for Python 3) by running a "Hello World" sample code.

Course Description:
This course is for anyone who wants to learn the fundamentals of the Python programming language from scratch and has no prior experience.

Objectives:
After completing this short-course, students will have the ability to write basic Python code, such as conditional statements, loops and functions.

Course outline and Hours:

Unit #	Unit Title	Lecture	Lab	Total
1	Python Introduction	3	1	4
2	Python Basics	3	1	4
3	Python Intermediate	3	1	4
	Total Hours for Program Completion	**9**	**3**	**12**

Unit 1: Python Introduction (4 hours)
We will cover an introduction to programming in Python. Learn what coding is, why Python is important, and how Jupyter Notebooks work.

Unit 2: Python Basics (4 hours)
We will learn about variables, basic data types such as integers, strings, floats, lists, dictionaries, tuples and their properties.

Unit 3: Python Intermediate (4 hours)
We will learn logical operations, if-else statements, while and for loops, and functions.

SCHEDULE & FEES

Tution: $299

Textbook: none

Schedule: Please visit www.thisismetis.com for current schedules.

Appendix

State Specific Policies

If you are a resident in one of the following states, please note the specific policies which shall apply to your Live Online Data Science Bootcamp enrollment.

Texas

Metis is approved and regulated by the Texas Workforce Commission, Career Schools and Colleges, Austin, Texas.

Organizational Structure and Background:

Metis was founded in 2014 by Kaplan. Kaplan provides individuals, universities, and businesses a broad array of educational services, including higher and professional education, test preparation, language training, corporate and leadership training, and student recruitment, online enablement and other university support services. With operations in nearly 30 countries, Kaplan serves nearly 1.1 million students each year and has partnerships with 2,000-plus universities, colleges, and schools/school districts, and more than 4,000 businesses globally.

Cancellation Policy:

A full refund, inclusive of the $100 registration fee, will be made to any student who cancels this enrollment contract within 72 hours (until midnight of the third day excluding Saturdays, Sundays and legal holidays) after the enrollment contract is signed, if the program of instruction is discontinued or by the school and this prevents the student from completing the course, or if the student is not admitted into the Program.

A full refund will also be made to any student who cancels enrollment within the student's first three days of Week 1, except that the school will retain a $100 registration fee. A registration fee is any fee charged by a school to process student applications and establish a student record system.

Refund Policy:

1. Refund computations will be based through the last date of attendance. Leaves of absence, suspensions and school holidays will not be counted as part of the scheduled class attendance.
2. The effective date of termination for refund purposes will be the last day of recorded attendance or:
    a. when the school receives notice of the student's intent to withdraw from the program; or
    b. when the student's enrollment is terminated for violation of a published school policy which provides for termination; or
    c. when a student, without notice, fails to attend the program for **ten** consecutive school days.
3. After expiration of the cancellation privilege, the student does not start, not more than $100 shall be retained by the school for the entire Program.
4. If a student starts the Program and withdraws or is otherwise terminated after the cancellation period, the school shall retain $100 plus the pro rata portion of tuition, fees, and other charges that the number of hours

completed in the Program or the effective date of termination as set forth above, except that a student may not collect a refund if the student has completed 75 percent or more of the total number of hours in the portion of the program for which the student has been charged on the effective date of termination.

5. Refunds for items of extra expense to the student, such as books, tools, or other supplies are separate from refund of tuition and other academic fees. The student will not be required to purchase instructional supplies, books and tools until such time as these materials are required. Once these materials are purchased, no refund will be made.

6. The payment of refunds will be totally completed such that the refund instrument issued or credit card credited into the proper account(s), within 60 days after the effective date of termination.
    a. If a third party paid for tuition on your behalf, the refund transaction will be made to that third party in the amount of the refund due (but in no event greater than what that third party paid to Kaplan). If there is an excess balance of the refund after payment to that third party, that amount will be refunded to you. If you obtained a loan to pay for the Program, you will be responsible for repaying the full amount of the loan plus interest, less the amount of any refund.

7. A full refund of all tuition and fees is due and refundable in each of the following cases:
    a. An enrollee is not accepted by the school;
    b. If the course of instruction is discontinued by the school and this prevents the student from completing the course; or
    c. If the student's enrollment was procured as a result of any misrepresentation in advertising, promotional materials of the school, or representations by the owner or representatives of the school.

    A full or partial refund may also be due in other circumstances of program deficiencies or violations of requirements for career schools and colleges.

8. REFUND POLICY FOR STUDENTS CALLED TO ACTIVE MILITARY SERVICE.

    A student of the school or college who withdraws from the school or college as a result of the student being called to active duty in a military service of the United States or the Texas National Guard may elect one of the following options for each program in which the student is enrolled:

    a. If tuition and fees are collected in advance of the withdrawal, a pro rata refund of any tuition, fees, or other charges paid by the student for the program and a cancellation of any unpaid tuition, fees, or other charges owed by the student for the portion of the program the student does not complete following withdrawal;
    b. A grade of incomplete with the designation "withdrawn-military" for the courses in the program, other than courses for which the student has previously received a grade on the student's transcript, and the right to re-enroll in the program, or a substantially equivalent program if that program is no longer available, not later than the first anniversary of the date the student is discharged from active military duty without payment of additional tuition, fees, or other charges for the program other than any previously unpaid balance of the original tuition, fees, and charges for books for the program; or
    c. The assignment of an appropriate final grade or credit for the courses in the program, but only if the instructor or instructors of the program determine that the student has:
        i. satisfactorily completed at least 90 percent of the required coursework for the program; and
        ii. demonstrated sufficient mastery of the program material to receive credit for completing the program.

Grievance Policy:

Notification of Complaint to the Texas Workforce Commission

A student who is dissatisfied with the Director's response may file a complaint with the Texas Workforce Commission:

> Texas Workforce Commission
>
> Career Schools and Colleges, Room 226T 101 East 15th Street
>
> Austin, Texas 78778-0001
>
> Phone: (512) 936-3100
>
> Information on filing a complaint with TWC can be found on TWC's Career Schools and Colleges Website at texasworkforce.org/careerschools.

Ownership:

The Metis campuses are owned by Kaplan, Inc., a subsidiary of Graham Holdings Company and operates schools at the following locations:

Main Campus/Administrative Site for Live Online ONLY
Kaplan Prep & Achieve
750 Third Avenue
New York, NY 10017